

CHAPTER 8: COMMITMENTS AND MITIGATION

The mitigation of adverse project impacts has been organized into the following four categories:

- I. Mitigation Commitments
- II. Avoidance Commitments
- III. Section 106 Memorandum of Agreement (MOA)
- IV. Biological Assessment (BA)

I. Mitigation Commitments

These mitigation measures will be implemented during the design and construction phases of project development.

Context Sensitive Solutions

- Develop designs for the Ohio River Bridges through State Context Sensitive development procedures that include an appropriate balance of cost, sensitivity to the landscape, and local/regional desires.
- The proposed bridge for **Alternative C-1** will not block approaching mariners' views of the Kennedy Bridge.
- The proposed bridge for **Alternative C-1** will provide a 1,100 foot navigation span with piers set 200 feet outside of the Kennedy Bridge piers on either side of the channel.
- The computer model at the Center for Maritime Education (CME) of the Seaman's Institute located in Paducah, Kentucky will be used to determine pier placement.

Endangered Species

The following is a summary of the mitigation and commitments identified in the Biological Assessment (See Section IV of this Chapter). For additional information, please refer to the Biological Assessment.

- Tree removal in construction zones must be scheduled between October 15 and March 31 to prevent disturbance to trees that may harbor the Indiana bat summer colonies.
- In order to maintain a riparian buffer zone, tree cutting will be maintained within the construction limits and will be limited to that absolutely necessary to complete the project.
- Disturbed areas will be re-vegetated to the maximum extent possible with tree species that produce sloughing bark and snags. Species to consider include White oak, Northern red oak, White ash, Shagbark hickory, Slippery elm, Black locust, American elm, Shellbark hickory, cottonwood and sycamore.
- Preservation of surface water quality within the Gray bat and Indiana bat forage areas will be controlled by maintaining stream-crossing impacts. Channel work such as, vegetation clearing, channel widening, shaping of spill slopes and placement of riprap will be limited to the construction limits. Riprap used for bank stabilization will extend below the low water level to aid in the establishment of aquatic life and potential food reservoir.

- In order to protect forage areas for the Indiana and Gray bats and to maintain water quality the following management practices shall be implemented; no equipment will be allowed directly in the streams. Staging, refueling and cleanup areas will not be allowed along-side streams. KYTC and INDOT BMP's for stream protection will be in place during project construction.
- Hollow trees, trees with sloughing bark, and other large trees that fall within the project limits will be avoided to the maximum practical extent and delineated by special notes in the plans and measures such as special fencing during construction.
- All construction equipment used in the Ohio River and tributaries will be free of Zebra Mussel adults and veligers. Any construction equipment that has been used in waters that could have been infested with Zebra Mussels will be appropriately disinfected and inspected for Zebra Mussel adults and veligers prior to use in the Ohio River and tributaries. A special note shall be included in the final plans providing information on the appearance and characteristics of zebra mussels, importance of steps required to minimize or eliminate potential infestation, and other special steps that may be appropriate for the particular phased approach to the final project.

Erosion Control

- Construction limits will be minimized.
- Best Management Practices (BMP) will be utilized to prevent non-source point pollution, to control storm water runoff and to minimize sediment damage to water quality and aquatic habitats.
- Erosion control measures such as berms, dikes, geotextile filter cloths, slope drains, sediment basins, mulched seeding, sodding, and riprap will be installed where appropriate.
- Use of sediment traps will be determined for specific streams as dictated by the construction permit process.
- Temporary and permanent erosion control features will be incorporated into the project at the earliest practicable time as construction progresses.
- When seeding or sodding must be delayed, temporary erosion protection with mulches, fiber mats, matting, dust palliatives, crust-forming chemicals, or plastic sheets will be provided.
- The contractor will be required to develop a plan detailing the source and method of transportation of borrow/fill.
- When borrow material is obtained from other than commercially operated sources, erosion of the borrow site shall be controlled during and after completion of the work by minimizing the erosion in such a way that it will prevent sediment from entering streams or other bodies of water.
- Waste or disposal areas and construction roads will be located and constructed in a manner that will keep sediment from entering streams. BMPs such as diversion channels, dikes, and sediment traps will be used for this purpose.
- All excavated materials not utilized for roadway embankment or disposed of off-site will be hauled for storage to an upland site and secured in such a manner as to prevent runoff from entering streams.

- Implementing an approved soil erosion and sedimentation control plan will control erosion within the construction limits. All construction activities must comply with federal and state soil erosion and sedimentation regulations. This plan will be developed in conjunction with final construction plans. The INDOT Standard Specifications and Special Provisions will govern construction activities in Indiana to control erosion and subsequent water pollution. The KYTC Standard Specifications for Road and Bridge Construction will guide construction activities in Kentucky.

Air Pollution

- Construction activities will be performed in a manner that controls emissions from burning (where allowed), drilling, blasting, production of materials, hauling, or any other necessary construction operations of any kind.
- Air pollution associated with dust will be effectively controlled through the use of watering, the application of calcium chloride, or other techniques in accordance with the KYTC and the INDOT specifications. Watering work areas to increase moisture and reduce dust will control air pollutants generated by construction.
- Contract specifications will dictate that all drilling, grinding, and sawing of rock, shale, concrete, and other similar dust-producing materials be performed with equipment provided with water sprays, fabric-filtered collection systems, or other suitable devices to prevent excessive dust from becoming airborne.
- Emissions from construction equipment will be controlled in accordance with emission standards prescribed under state and federal regulations. Equipment must be maintained in proper mechanical condition with original exhaust equipment.
- All construction equipment will be required to comply with OSHA (Occupational Safety and Health Administration) regulations.
- No burning of construction wastes will be permitted without proper variance from the Indiana Department of Environmental Management (IDEM) and/or the Kentucky Natural Resources and Environmental Protection Cabinet (KNREPC) as well as any local air agencies regulating these types of activities. All burning will be conducted in accordance with applicable laws, ordinances, rules and regulations.

Right-of-Way

- Limited access right-of-way will be purchased along U.S. 42 near the ramps controlling induced development.
- During final design, landlocked parcels will be identified. During right-of-way acquisition, agents will work with the affected property owners on a case-by-case basis to determine the best solution for each occurrence.

Noise

- The city of Louisville has a local noise ordinance with specific provisions that regulate construction noise. Those provisions will be incorporated into the project specifications.

- Barriers for the neighborhoods below are likely, however, as part of the final design process, more detailed barrier analyses and design will be performed utilizing the more detailed design information that will be available at that time. Potentially reasonable and feasible noise barriers will be coordinated with the affected communities for their input to determine if there is local support for proposed barriers. Those communities whose input will be sought include the following, but not necessarily limited to:
 - Wolfpen Woods Neighborhood (receptors 26 and 27)
 - Bridgepointe Neighborhood (receptors 28, 29 and 30)
 - Harbor at Harrods Creek Condominiums (receptors 36, 37, 39 and 40)
 - Boulder Creek subdivision (receptors 120 and 121)
 - East Side of I-65 between Muhammad Ali and Market Street (receptor 70)
 - Butchertown Neighborhood - West Side of I-64 from Mellwood Avenue to Story Avenue (receptors H27 and H28)
 - Old Jeffersonville Historic District (receptors 108, 109 and 110)

Final decisions regarding exact noise barrier locations, heights and types will be made at the time of final design in accordance with federal and state noise policies. Barrier feasibility will be re-evaluated during the final design phase for two additional locations:

- Butchertown Neighborhood – South side of Kennedy Interchange from Main to I-64 and along south side of Witherspoon Drive (receptor 68)
- Harbours Condominium – West side of I-65 from Kennedy Bridge to Court Avenue (receptor 111)

(See Chapter 5.5, Tables 5.5-2 and 5.5-3 and Figures 5.5-1 through 5.5-5 for more detailed information regarding noise impacts)

- Post-construction noise measurements will be taken to measure the effectiveness of the noise wall installations upon completion of the project in 2020.

Construction Blasting

- The blasting program will be designed and performed by certified contractors.
- Prior to the initiation of any blasting, a minimum of one small test charge will be set for each new drill-and-blast site prior to establish local ground-borne vibration propagation characteristics. This test charge will be set below the threshold level for that location.
- Seismometers or other devices placed by the blasting contractor around a drill-and-blast site to monitor vibration levels to use in refining the blasting program and document compliance with the specification limits.
- Adjustments in the charge per delay will be considered for any change in condition encountered during construction and as a result of monitored vibration levels.
- Blasting programs will be utilized that prevent ground vibration in excess of 2.0 in/sec PPV at any structure; in excess of 0.5 in/sec PPV at any residential structure; in excess of 0.2 in/sec PPV at any fragile buildings; and in excess of 0.12 in/sec PPV at any very fragile historical buildings.
- Condition surveys will be conducted for structures within 500 feet of a drill-and-blast site, prior to initiation of blasting and after completion of work.

Woody Revegetation

- DO NOT DISTURB signs will be placed at the construction zone boundaries for those portions of the project within Indiana. These signs will be placed beyond the construction limits to protect revegetation areas and areas of existing vegetation. Trees that fall within the right-of-way, but outside of the construction limits will be identified during the design phase and delineated by fencing or other measures to minimize impacts.
- DO NOT MOW OR SPRAY signs will be posted along the right-of-way for selected areas (areas of woody revegetation, wetlands and preservation of existing woody vegetation) in Indiana in accordance with INDOT requirements and in selected areas in Kentucky where mitigation plantings may be required.
- INDOT will purchase at a 1:1 ratio existing woodland for preservation or revegetate upland woodland at a 1:1 ratio to mitigate forested habitat lost as a result of this project.
- Excess parcels that have been purchased as part of this project will be utilized for wetland mitigation or reforestation as appropriate.
- Invasive-free mulches, topsoil and seed mixtures, and eradication strategies to eliminate known invasive species will be incorporated into the final project.
- Provisions will be included in the final plans emphasizing the selection of construction and landscaping techniques and equipment that will minimize the spread of invasive plant species, particularly in areas where steep slopes are involved. Attention shall also be given to minimizing soil disturbance during vegetation management activities. Invasive-free mulches, topsoil and seed mixtures, and eradication strategies to eliminate known species will be incorporated into the final project.
- KYTC will provide for replacement of trees removed by construction in those areas where dense vegetation provided a buffer for abutting properties.
- KYTC will include trees or other types of vegetation in the revegetation plan developed for the project for noise barrier walls included with the project.
- KYTC will consult with the Bridgepointe Neighborhood Association and consider their recommendations in developing a landscape component for any wall placed along the border of the neighborhood.

Water Pollution

- Work in the low-water channel of existing streams will be minimized to the maximum practicable extent by limiting construction to the placement of required drainage structures or structure components such as piers, pilings, footings, cofferdams, shaping of spill slopes around bridge abutments and placement of riprap.
- Frequent fording of live streams will not be permitted. Temporary bridges or other structures will be used whenever necessary. Mechanical equipment will not be allowed in wetlands beyond the construction limits. Only coarse granular material will be placed in live streams during construction. Any temporary river accesses built in conjunction with this project will be completely removed upon completion of construction activities.

- Pollutants such as fuels, lubricants, bitumens, raw sewage and other harmful materials will not be discharged into or near rivers, streams and impoundments or into natural or manmade channels leading thereto. Wash water or waste from concrete mixing operations will not be allowed to enter live streams.
- A non-toxic flocculent agent or other acceptable method of preventing siltation will be used in cofferdams during cofferdam dewatering.
- Below low water, channel work will be avoided during the fish-spawning season between April 1 and June 30.
- Bridge deck runoff shall be collected within a drainage system designed as an element of **Alternative A-15** that includes bridge-deck drains and storm sewers that will transport runoff to the Kentucky end of the bridge. Storm sewers shall be connected and runoff emptied into a storage area designed to hold the one-hour peak discharge for a 100-year storm event. The storage area to be retained and will then either be released to a surface drainage system or pumped into trucks and transported to a facility approved to receive such contents.

The Kentucky Transportation Cabinet Standards for Road and Bridge Construction and the Indiana Department of Transportation Standard Specifications provide standard temporary and permanent erosion measures required in the construction of highway facilities. In addition to these standard measures, additional measures are recommended for that portion of the Project within the proposed Louisville Water Company wellhead protection area. These include:

- a. Work within the wellhead protection area shall be limited to that included in the plans, unless otherwise approved by the Engineer in writing.
- b. Plants shall not be placed nor shall equipment and materials be stored within the wellhead protection area.
- c. Equipment required for construction of the bridge piers may be located within the wellhead protection area, provided a berm is constructed around the equipment and a liner placed within the bermed area to protect against any accidental release.
- d. Equipment required for construction of the bridge piers shall be moved from the wellhead protection area at the earliest opportunity, berms and liners removed and any materials contained within the bermed area transported to an approved disposal site, outside the wellhead protection area.

Design and construction of bridge piers within the wellhead protection area also must be developed with attention to the wellhead protection area. Some general recommendations can be provided at this time, however these should be reviewed and modified as appropriate after the final structure type is selected and the specific construction requirements of the footers and piers has been developed.

- a. The contractor shall minimize to the extent possible the area that must be disturbed to construct bridge piers and other elements of the bridge substructure located below the surface.

- b. Any voids left between the pier and surrounding ground shall be sealed by using bentonite clay or other approved materials, as soon as possible after completion of work on the pier.

Pier construction methods and drainage system will be coordinated with the LWC and the Groundwater Protection Branch of the Kentucky Division of Water to assure construction methods are employed to prevent contamination of the aquifer.

Wetlands

- The USACE met with FHWA on March 17, 2003 to discuss the selection of a Preferred Alternative, assure that the Preferred Alternative is the least damaging practicable alternative, and discuss potential mitigation sites. The USACE issued a letter dated March 25, 2003 to summarize their preferences (see Appendix C.9). The USACE suggested that it would be best to complete final delineations as final design commences, so that efforts can be made to further minimize wetland impacts during final design. These delineations and minimization efforts are needed for the detailed permit application that will be required at that stage, to fulfill the USACE review requirements under the Section 404(b)(1) Guidelines. The USACE noted that **Alternative A-15** has the smallest wetland impacts (from practicable alternatives), and as such expressed skepticism that Alternative A-16 (with greater wetland impacts) could demonstrate compliance with the Section 404(b)(1) Guidelines. The USACE noted that prior converted cropland is available in Clark County, Indiana that could be used for wetland mitigation. They noted that such mitigation is their preference and that alternative mitigation such as wetland banks or in-lieu-fee programs should only be used as a last resort.
- A monitoring plan must be included with the wetlands mitigation plan. The plan must be approved by the permitting agencies.
- Design modifications including narrowing medians, shoulder widths and spanning wetlands can be considered during the design of the Preferred Alternative.
- Continued minimization of wetlands will be repeated during the development of design.

Permits

The following Federal permits relating to terrestrial and aquatic resources will be required for the construction of the Preferred Alternative:

Agency

USACE

USACE

U. S. Coast Guard

U.S. Federal Aviation

Permit

Section 404 Permit for Discharge of Dredged or Fill Material into waters of the United States
Construction, Dumping and Dredging Permit
(Section 10)

Bridge Permit (Section 9)

FAA Form 7460-1 Notice of Proposed

Administration

Construction or Alteration

The following Indiana State permits relating to terrestrial and aquatic resources will be required for construction of the Preferred Alternative:

<u>Agency</u>	<u>Permit</u>
IDEM	Section 401 Water Quality Certification
IDEM	National Pollution Discharge Elimination System, Rule 5
IDNR	Construction in a Floodway Permit

The following Kentucky State permits relating to terrestrial and aquatic resources may be required:

<u>Agency</u>	<u>Permit</u>
NREPC, Division of Water	Floodplain Construction Permit
NREPC, Division of Water	Section 401 Water Quality Certification
NREPC, Division of Water	National Pollution Discharge Elimination System, Rule 5

Park Resources

- Any excess right-of-way adjacent to a park affected by the Preferred Alternative will be available for use by the parks.
- The bridge will be designed to aesthetically compliment the existing landscape of the parks affected by the Preferred Alternative.
- Vegetative screening will be incorporated, as appropriate, into the design to decrease the amount of visual impacts upon the parks.
- Park properties will be spanned by bridge to minimize impacts and to allow access underneath the bridge.
- No construction activities other than those described in the EIS will be conducted in Parks without additional 4(f) analysis and approval.

Six Mile Island

- Span length and the location of bridge support piers will be coordinated with agencies having jurisdiction over the refuge.

Waterfront Park

- Approximately 40-45 acres within the existing interchange located adjacent to the park will be available for re-use. These 40-45 acres will be provided for public use to the Waterfront Development Corporation through the Louisville-Jefferson County Metro Government in accordance with 23 CFR 710.403. Fifteen (15) of these 40-45 acres will be donated for inclusion into Waterfront Park. The remaining acreage will also be made available to the Waterfront Development Corporation through the Louisville-Jefferson County Metro Government.

- The activities for public use of the 40-45 acres will be determined in accordance with a comprehensive study of the Waterfront Park and its relationship to east downtown Louisville conducted by the Louisville-Jefferson County Metro Government. This study will be coordinated with the historic preservation plans being developed in accordance with the MOA executed under the Section 106 of the Historic Preservation Act.
- The pavement and structures within the 40-45 acres will be removed prior to transferring of the property unless otherwise requested by the Louisville-Jefferson County Metro Government and the Waterfront Development Corporation.

Traffic Control

- Minimize disruption to access for properties during construction, including access to Wolf Pen Branch Road at Bridgepointe's back gate during construction of the permanent bridge over KY 841 and any temporary bridge required to complete that work.
- Provide the public with advance information on traffic control measures through appropriate media prior to implementation of those measures.
- Consult with school and bus administrators prior to implementing construction on project elements.
- Consult with local officials in developing maintenance of traffic plans for construction projects to minimize use of subdivision streets by through traffic.

Tunnel Design, Construction, and Operation

- Design and construct the rock cuts at either end of the tunnel to provide a durable and aesthetic transition into the tunnel portals, including consideration for tiering and landscaping to complement the tunnel portal design.
- Incorporate state-of-the art materials and concepts into the design of the cut section and tunnel that can provide additional, cost-effective benefit in minimizing noise impacts for this section of roadway.
- KYTC will consult with the city of Prospect, Bridgepointe Neighborhood Association, and representatives of properties along the section of A-15 between the Wolf Pen Road Bridge and US 42 about the placement of a safety wall in lieu of an access control fence to provide a more positive separation between the roadway and adjacent properties. The height, shape and facing of any safety wall placed within this section of the Project will be developed through consultation with representing the adjacent properties and in manner that complements other noise mitigation measures incorporated into the Project.
- Design the tunnel portals, Wolf Pen Branch Road Bridge over A-15, and the westbound exit ramp bridge to US 42 to include an aesthetic treatment such as creekstone, stonework

used at the entrance to Bridgepointe or other similar treatment that enhances the appearance of these structures.

- Incorporate appropriate crash protection devices at the tunnel portals.
- Develop an Emergency Response Plan as a part of tunnel design that includes emergency response routes for access to both ends of the tunnel during an incident.
- Develop a Training Program for local safety officials on emergency response provisions of the Emergency Response Plan and implement prior to opening of tunnel to traffic.
- Expand ITS system to include equipment for monitoring traffic on the approaches to the tunnel and complement emergency response plan developed for the project.
- Include sufficient video cameras within the tunnels as part of the ITS system expansion with monitors located within local police and fire protection facilities for 24-hour response.
- Include sufficient electronic warning signs east of I-71 and in Indiana as part of the ITS system expansion for effective re-routing of traffic during incidents.

Historical and Archaeological Resources

The following is a summary of the mitigation and commitments identified in the MOA found in Section III of this chapter. For additional information, please refer to the MOA.

Historical Resources

- The roadways, bridges, and project elements shall be designed and constructed with aesthetic values and sensitivity to the historic cultural and contextual landscapes, utilizing the services of professionals with experience in areas related to historic preservation. Design shall include aesthetic treatments to surfaces, structures, portals, appurtenances, and land contours and landscaping that complement the historical contexts of historic properties.
- Roadway lighting within the viewshed of historic properties and any navigational lighting required on structures included in the project shall be designed and constructed to minimize the dispersion of light beyond the highway right of way and include state-of-the-art techniques and systems, such as Full Cutoff Optics (FCOs) or other similar systems, to the extent allowed by the USCG requirements and to ensure safe roadway lighting levels.
- Within three years following the Record of Decision, KYTC in cooperation with FHWA, SHPOs and appropriate local government organizations will sponsor a Smart Growth Conference for the Louisville – Southern Indiana Region to inform local governments

about the opportunities of smart growth to promote changes in local land use planning in a manner that provides for maximum efficiency within the transportation projects while promoting the preservation of historic properties within the region. The conference will provide model ordinances and other materials that can be used by local governments in the implementation of new measures for this region.

Mitigation measures developed for each of the specific historic properties follows. The states will be forming advisory teams as stated in Stipulation I.A of the MOA. The purpose of these teams will be to ensure the Project is designed in a manner that respects the historic qualities, landscapes, historic buildings and features within the alternative specific APE.

- **Train Depot – Indiana**

- INDOT will include streetscape improvements within the limits of the Project and through the Spring Street frontage of the Depot consistent with Stipulation II.J of the MOA. These improvements may include curbing, ornamental street lighting and tree planting developed with input from the Indiana Historic Preservation Advisory Team (IHPAT) and recommended for the Project by the Bi-State Historic Consultation Team.
- INDOT will make a reasonable and good faith effort to acquire this property at the fair market value and from a willing seller. If acquired, the following additional stipulations shall apply:
 - The building on this property will be available during the construction period to house personnel assigned to the Project and the Ombudsman included for the Indiana portion of the Project. Any other activities in the building or on the property shall be permitted only after consultation between INDOT and the INSHPO.
 - Any work to rehabilitate the Train Depot shall be undertaken in consultation with the INSHPO and in accordance with the Secretary's Standards.
 - A preservation easement shall then be placed on the property consistent with Stipulation II.H and the property shall be sold at fair market value to a preservation organization or other party acceptable to the Bi-State Historic Consultation Team or donated to a local government.
- If INDOT is unable to acquire the property as stipulated above, INDOT shall consult with the INSHPO to identify and implement alternative mitigation measures.
- INDOT will develop documentation for and seek NRHP nomination as set forth in Stipulation II.I of the MOA.
- In consultation with the IHPAT and the INSHPO, INDOT shall develop and place interpretative signage as set forth in Stipulation II.K of the MOA, near the facility to explain its historic significance.

- **Colgate -Palmolive Historic District – Indiana**

- INDOT will develop documentation and seek NRHP nomination as set forth in Stipulation II.I of the MOA. If the property owner does not consent to NRHP

listing, then INDOT shall make reasonable effort to prepare documentation for the historic district at a level to be agreed upon by the INSHPO, INDOT and the FHWA.

- In consultation with the IHPAT and the INSHPO, INDOT shall develop and place interpretative signage, as set forth in Stipulation II.K of the MOA, near the facility, to explain the historical importance of the site, its evolution, and its importance to the economic growth of the region.
- **Ohio Falls Car and Locomotive Company Historic District – Indiana**
 - INDOT will develop documentation and seek NRHP nomination as set forth in Stipulation II.I of the MOA. If the property owner does not consent to NRHP listing; then INDOT shall make reasonable effort to prepare documentation for the historic district at a level to be agreed upon by the INSHPO, INDOT and the FHWA.
 - In consultation with the IHPAT and the INSHPO, INDOT shall develop and place interpretative signage, as set forth in Stipulation II.K of the MOA, near the facility, to explain the historical significance of the site, its evolution, and its importance to the economic growth of the region.
 - Prior to initiating construction activities in this section of the Project, INDOT will ensure that the construction contractor shall develop and implement a blasting/vibration plan for the Project to avoid damage to the District as set forth in Stipulation II.L of the MOA.
- **George Rogers Clark Memorial Bridge – Indiana**
 - INDOT and KYTC shall make every reasonable effort to avoid displacement of the historic bridge pylons on the Indiana approach to the Clark Memorial Bridge (U.S. 31).
 - In the event displacement of the bridge pylons cannot be avoided, the INDOT and KYTC, in consultation with FHWA and the Historic Preservation Advisory Teams, shall develop and implement a Treatment Plan which will include measures designed to minimize damage to the original contributing elements to the structure, including retaining walls and administration building. The Treatment Plan shall include documentation on the original bridge pylons, retaining walls and other features within the Project limits at a level to be agreed upon by the parties noted above, and shall include recommendations for historically appropriate lighting where it is necessary to replace the existing fixtures.
 - The INDOT and KYTC shall make every reasonable effort to relocate the pylons in a way that will ensure protection of the NRHP designation for the bridge.
- **Old Jeffersonville Historic District – Indiana**
 - INDOT shall have a Historic Preservation Plans (HPP) developed for the property as set forth in Stipulation II.F of the MOA. The HPP will provide a context and other information for use in developing streetscape improvements, relocating contributing houses, and designing pedestrian friendly facilities under the bridges

as outlined below. The HPP shall also include guidelines and/or best practices for the selection and implementation of noise abatement measures in a manner so as not to compromise the historic integrity of the District.

- The HPP will be presented to the city of Jeffersonville for potential use as a component of the City's Comprehensive Plan and to inform the community and local government of additional historic preservation threats and opportunities.
- INDOT will design and construct streetscape improvements along city streets within the Historic District between Spring Street and the Project, as set forth in Stipulation II.J of the MOA, taking into consideration the type of improvements already underway by the city of Jeffersonville on Spring Street.
- INDOT shall design and construct pedestrian friendly facilities within Indiana right of way under the new bridge and existing John F. Kennedy Bridge. These facilities shall include amenities such as public art, lighting, and other treatments as set forth in Stipulation II.J of the MOA, and will be in keeping with the context identified in the HPP for the Old Jeffersonville Historic District.
- The INDOT and KYTC shall minimize spacing between the proposed new downtown bridge along Alternative C-1 and the existing John F. Kennedy (I-65) Bridge consistent with prudent engineering principles.
- INDOT and KYTC will develop and implement a highway signage plan that minimizes the number of overhead directional signs on the approach spans to the bridge, while preserving and improving highway safety.
- INDOT, in consultation with INSHPO and FHWA, will make a reasonable effort to relocate the five contributing structures that would otherwise be demolished by the Project, including those located at 115 Fort Street, 116 Fort Street, 502 West Market Street, 432 West Riverside Drive, and 502 West Riverside Drive, to available vacant lots within the Historic District.
 - During the acquisition phase, the INDOT, in consultation with the INSHPO, will make a reasonable effort to purchase vacant lots within the Historic District from a willing seller at fair market value, then move and place the houses on new foundations in accordance with the approaches recommended in *Moving Historic Buildings* (John Obed Curtis, 1979, American Association for State and Local History), and by a professional who has the capability to move historic buildings properly. The relocated buildings will be made available for sale at fair market value on the open market.
 - INDOT shall place a preservation easement on these relocated historically significant houses as set forth in Stipulation II.H of the MOA.
 - INDOT shall stipulate through a covenant that the purchaser must occupy the house for 5 years and maintain the property in accordance with preservation standards acceptable to the INSHPO.
- If INDOT is unable to obtain suitable property within the Historic District for the relocation of any of the structures referenced above, INDOT, in consultation with the INSHPO, shall prepare and implement a marketing plan to market the building(s) for relocation by others at a nominal fee.

- The plan shall include information about the building(s), including photographs and information on the property's significance, cost, and tax benefits of rehabilitation; notification that the recipient will be required to rehabilitate the building(s) in accordance with the Secretary's Standards; a distribution list of potential purchasers or transferees; an advertising plan and schedule; and a schedule for receiving and reviewing offers.
 - Upon INSHPO's agreement with the marketing plan, INDOT shall implement the plan for a minimum of six months.
 - INDOT shall review all offers in consultation with INSHPO prior to acceptance.
 - If there is no acceptable offer that will conform to the requirements for rehabilitation and maintenance, INDOT, with the approval of INSHPO, may donate the property to a local government.
 - INDOT shall design and construct roadway lighting in the viewshed of the Historic District as set forth in Stipulation II.D of the MOA.
 - INDOT shall implement noise abatement measures where Project noise is expected to affect the Historic District as set forth in Stipulation II.E of the MOA.
 - Timing of construction activities shall be scheduled and provisions included in the plans by the Bi-State Historic Consultation Team in accordance with Stipulation II.M of the MOA and with input from the Advisory Teams, so as to limit construction activities, which may result in additional impacts to the historic district.
 - Prior to initiating construction activities, INDOT shall ensure that construction contractors shall develop and implement blasting/vibration plans for properties abutting the Project to avoid damage to listed and eligible historic properties in accordance with Stipulation II.L of the MOA.
- **INAAP Igloo Storage Historic District – Indiana**
Prior to initiating construction activities, INDOT will ensure that the construction contractor will develop and implement a blasting/vibration plan for the Project in consultation with the Department of the Army, INAAP Re-Use Authority, and the INSHPO to avoid damage to this property as set forth in Stipulation II.L of the MOA. This plan shall include provisions for blast monitoring and repair if the Department of the Army grants permission and access.
 - **Lentz Cemetery – Indiana**
 - Prior to initiating construction activities, INDOT will ensure that the construction contractor will develop a blasting/vibration plan for the Project to avoid damage to this property as set forth in Stipulation II.L of the MOA.
 - INDOT will design the section of roadway adjacent to the cemetery to minimize noise impacts to this property and complement the refinement with landscaping within the public right of way whenever appropriate.
 - **Lime Kilns within the Utica Lime Industry Multiple Property Listing – Indiana**

- INDOT shall develop a HPP in accordance with Stipulation II.F of the MOA, to include a Context Study focusing on the development of the lime industry within the region and including the identification of significant lime industry structures with recommendations for preservation of the history of the lime industry in Utica Township/Southern Indiana. In consultation with the INSHPO, INDOT will develop and publish a pamphlet for public distribution presenting the results of the lime industry study.
 - Prior to initiating any construction activities within 1,000 feet of the lime kilns, INDOT shall prepare a Condition Report of these resources that includes photographs to serve, in part, as a baseline to measure any construction related damage that may occur to the kilns. The documentation shall be a level agreed upon between INDOT and INSHPO.
 - Prior to initiating construction activities, INDOT will ensure that the construction contractor shall develop and implement a blasting/vibration plan for the Project to avoid damage to the three lime kilns identified as IE-HC-48002, IE-HC-48003, and IE-HC-48004 as set forth in Stipulation II.L of the MOA. The location of these three kilns shall be noted in the plans for the contractor's use to protect these resources. This plan shall include provisions for construction monitoring for this property.
 - INDOT shall delineate a "no-work zone" around the three lime kilns, noted above, as set forth in Stipulation II.N of the MOA. The "no-work zone" shall generally extend 100 feet from the kilns.
 - The INDOT shall repair any damage caused as a result of Project construction to the three lime kilns, noted above, in accordance with accepted preservation standards and in consultation with the INSHPO.
 - INDOT shall make a reasonable effort to acquire the lime kiln identified as IE-HC-48004 during the right-of-way phase of the Project if the Bi-State Historic Consultation Team deems it necessary to preserve the resource. Should the lime kiln be acquired, a preservation easement as set forth in Stipulation II.H of the MOA will be placed on the property and it will be sold at fair market value to a preservation organization or donated to a local government. In consultation with the INSHPO, INDOT shall implement stabilization measures in accordance with the Secretary's Standards prior to its sale.
 - INDOT, in consultation with INSHPO, will develop and place an interpretive marker along Utica Pike as set forth in Stipulation II.K of the MOA that describes the importance of the lime industry in the area and the significance of the kilns.
 - INDOT will develop documentation for and seek NRHP nomination for the lime kilns as set forth in Stipulation II.I of the MOA.
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- **Swartz Farm Rural Historic District – Indiana**
 - INDOT shall develop a thematic context study for agriculture in Clark County, Indiana, and surrounding counties to assist with future nominations in the region.
 - INDOT will, in consultation with the INSHPO, purchase that portion of the Swartz Farm lying on the west side of the Project that includes the house, barn, and associated outbuildings.

- Prior to initiating construction activities, INDOT will ensure that the construction contractor shall develop and implement a blasting/vibration plan for the Project to avoid damage to this portion of the Swartz Farm as set forth in Stipulation II.L of the MOA.
- INDOT will develop documentation for that portion of the Swartz Farmstead defined above and seek NRHP nomination of the remaining farmstead as set forth in Stipulation II.I of the MOA.
- INDOT shall delineate a “no-work-zone” around the remaining Swartz farmstead as set forth in Stipulation II.N of the MOA.
- INDOT will place a preservation easement on the property, as set forth in Stipulation II.H of the MOA, and sell the property to a historic preservation organization or donate the property to a local government or historic preservation organization. If neither a local government nor preservation organization is willing to accept title to the property, it may be sold to anyone who would accept the property’s preservation easement. If sold, the current owner will have first right of refusal.
- In consultation with the INSHPO, INDOT shall prepare archival documentation of the Central Passage House prior to its demolition.
- In consultation with the INSHPO and FHWA, INDOT will develop and implement a landscaping plan for the property to minimize visual impacts of the Project paying particular attention to the roadway and S.R. 62 interchange.
- INDOT will accept by donation and preserve that portion of the James Smith Farm (#45024) that was determined eligible for the NRHP as a rural historic farmstead. If the property is donated, the following stipulations will apply:
 - In consultation with the INSHPO, INDOT shall develop and implement a plan to stabilize the property to ensure that it retains its historic integrity until such time as it can be transferred to a new owner.
 - INDOT will place a preservation easement on the property, as set forth in Stipulation II.H of the MOA, and sell the property at fair market value to a preservation organization or other party acceptable to the Bi-State Historic Consultation Team or donate the property to a local government. If sold, the current owner will have first right of refusal.
 - Prior to the sale or donation of the property, INDOT shall fund the exterior rehabilitation of the structure to a level consistent with the Secretary’s Standards.
 - INDOT shall develop an HPP for the James Smith Farm as set forth in Stipulation II.F of the MOA. The HPP will include strategies and recommendations for treatment and rehabilitation of the residence and grounds, reuse of the property for public use, and maintenance by a local or regional preservation organization, or local government acceptable to the INDOT and INSHPO.
 - INDOT will develop documentation for and seek NRHP nomination and listing as set forth in Stipulation II.I of the MOA.

- **Trolley Barn – Kentucky**

KYTC will ensure that any rehabilitation of the Louisville Railway Complex (Trolley Barn), associated with the Project, shall be developed and implemented in consultation with the KYSHPO to ensure that plans are in conformance with the Secretary's Standards for Rehabilitation.

- **Butchertown Historic District – Kentucky**

- KYTC shall develop an HPP for the property as set forth in Stipulation II.F of the MOA. The HPP shall include recommended measures for context sensitive design, noise abatement, streetscape improvements, connectivity to the river, and interpretive signage which shall be implemented as part of the Project to mitigate adverse effects to the Historic District and provide additional strategies for rehabilitation and reuse of buildings and grounds that could enhance the District. The HPP shall develop a thematic context to assist with future nominations in the region. The HPP shall be coordinated with the latest development plans available from the Louisville/Jefferson County Metro Government (Metro Government) that affect the Historic District and east downtown area.
- KYTC shall develop the Witherspoon Extension in accordance with provisions of the HPP as the principal east-west route through the Historic District; and implement measures that encourage north-south traffic through the Historic District to use Clay Street and Frankfort Avenue.
- In consultation with the Kentucky Historic Preservation Advisory Team (KHPAT), KYTC shall design and construct the roadway sections along the north side of the Butchertown Historic District using embankments or other designs recommended by KHPAT that support aesthetically pleasing noise abatement measures, lighting, and landscaping that maintain the context of the historic district as set forth in the HPP.
- Edison House – KYTC shall provide funding for rehabilitation of the exterior of the Edison House provided its owners agree to provide a preservation easement to ensure long-term preservation of its exterior in accordance with Stipulation II.H of the MOA. Plans shall be submitted to the KYSHPO for approval as to conformance with the Secretary's Standards prior to implementation. During the development of detailed plans and in consultation with the Edison House owners and KYSHPO, KYTC will conduct a noise study to determine whether interior noise abatement measures are justified. Interior noise abatement will be considered in accordance with Stipulation II.E of the MOA, if predicted noise levels exceed the interior noise abatement criteria.
- Wesley House – KYTC will provide funding for the rehabilitation of the exterior of the Wesley House provided its owners agree to provide a preservation easement to ensure long term preservation of its exterior in accordance with Stipulation II.H of the MOA. Plans shall be submitted to the KYSHPO for approval as to conformance with the Secretary's Standards prior to implementation. During the development of detailed plans and in consultation with the Wesley House owners and KYSHPO, KYTC will conduct a noise study to determine whether interior noise abatement measures are justified. Interior

noise abatement will be considered in accordance with Stipulation II.E of the MOA, if predicted noise levels exceed the interior noise abatement criteria.

- St. Joseph's Church – During the development of detailed plans and in consultation with the Church and KYSHPO, KYTC will conduct a noise study to determine whether interior noise abatement measures are justified for the Church, Day Care Center and School. Interior noise abatement will be considered in accordance with Stipulation II.E of the MOA, if predicted noise levels exceed the interior noise abatement criteria.
- Franklin Street Baptist Church – During the development of detailed plans and in consultation with the Church and KYSHPO, KYTC will conduct a noise study to determine whether interior noise abatement measures are justified for the Church. Interior noise abatement will be considered in accordance with Stipulation II.E of the MOA, if predicted noise levels exceed the interior noise abatement criteria.
- Marcus Lindsay Methodist Church - During the development of detailed plans and in consultation with the Church and KYSHPO, KYTC will conduct a noise study to determine whether interior noise abatement measures are justified for the Church. Interior noise abatement will be considered in accordance with Stipulation II.E of the MOA, if predicted noise levels exceed the interior noise abatement criteria.
- Grace Immanuel United Church of Christ - During the development of detailed plans and in consultation with the Church and KYSHPO, KYTC will conduct a noise study to determine whether interior noise abatement measures are justified for the Church. Noise abatement will be considered in accordance with Stipulation II.E of the MOA, if predicted noise levels exceed the interior noise abatement criteria.
- Grocers Ice and Cold Storage Company (601 – 615 East Main Street) – KYTC shall, in consultation with the KYSHPO, make a reasonable effort during project development to provide a plan that supports the adaptive reuse of this property. In the event such a plan cannot be developed, the KYTC will develop documentation for the property at a level agreed upon by the KYSHPO, KYTC, and FHWA and proceed to demolish the structure once the agreed upon documentation has been accepted.
- Mellwood/Story Connection – KYTC will conduct a study of the Mellwood Avenue – Story Avenue Connector during the development of detailed plans in order to evaluate the elimination of this proposed connector and restoration of two-way traffic flow on Mellwood Avenue and Story Avenue. Results of the study will be provided to the Advisory Team for review and comment and reported in the Progress Reports provided for in Stipulation IX of the MOA.
- KYTC shall design and construct streetscape improvements within the entire Historic District as set forth in Stipulation II.J of the MOA, in accordance with provisions of the HPP and the Kentucky Heritage Council's streetscape design guidelines.
- KYTC shall design and construct traffic calming measures on existing streets in the Historic District with attention to the expansion of east downtown Louisville

and Phase Two of the Waterfront Park with the concurrence of the KYSHPO and to the extent practicable and in a manner consistent with the HPP.

- KYTC shall design and construct Project roadway lighting within the viewshed of the Historic District as set forth in Stipulation II.D of the MOA.
 - KYTC shall implement noise abatement measures wherever Project noise is expected to adversely affect the Historic District as set forth in Stipulation II.E of the MOA.
 - Prior to initiating construction activities in this section, KYTC will ensure that the construction contractor shall develop and implement a blasting/vibration plan for the Project to avoid damage to the District as set forth in Stipulation II.L of the MOA.
- **Phoenix Hill Historic District – Kentucky**
 - KYTC shall develop an HPP for the Phoenix Hill Historic District as set forth in Stipulation II.F of the MOA. The HPP shall include recommended measures for context sensitive design, noise abatement, streetscape improvements, gateway elements, and interpretive signage which shall be implemented as part of the Project to mitigate adverse effects to the Historic District, as well as additional recommendations for measures to enhance the Historic District and include strategies for rehabilitation and reuse of the buildings and grounds that lie within the Historic District. The HPP shall develop a thematic context to assist with future nominations in the region. The HPP shall be coordinated with the latest development plans available from the Metro Government that affect the Historic District and east downtown area.
 - KYTC shall design and construct Project roadway lighting as set forth in Stipulation II.D of the MOA.
 - KYTC shall make a reasonable effort to work with the owner to relocate the Baer Fabrics Company to another historic property within the District or to a suitable facility within the Phoenix Hill neighborhood, as defined by the Metro Government. If the owner agrees to move his business to an historic property within the District or neighborhood, Project funds will be made available for its rehabilitation in accordance with Secretary's Standards and to suit the needs of its new function.
 - In consultation with the KYSHPO and the Metro Government, KYTC shall develop a treatment plan for rehabilitation of the Vermont American Buildings affected by the Project and to explore options for their re-use. The KYTC shall undertake the rehabilitation of the exterior of the building, if recommended in the treatment plan, as a part of the Project.
 - St. John's Church - During the development of detailed plans and in consultation with the Church and KYSHPO, KYTC will conduct a noise study to determine whether interior noise abatement measures are justified for the Church. Interior noise abatement will be considered in accordance with Stipulation II.E of the MOA, if predicted noise levels exceed the interior noise abatement criteria.
 - Refuge in Kentucky Church - During the development of detailed plans and in consultation with the Church and KYSHPO, KYTC will conduct a noise study to

determine whether interior noise abatement measures are justified for the Church, Day Care Center, and School. Interior noise abatement will be considered in accordance with Stipulation II.E of the MOA, if predicted noise levels exceed the interior noise abatement criteria.

- KYTC shall place interpretative signage as set forth in Stipulation II.K of the MOA within the Historic District to explain its historic significance.
 - KYTC shall include streetscape improvements along Main Street and Market Street from Floyd Street to Clay Street and in the area under the I-65 Bridge as set forth in Stipulation II.J of the MOA and in accordance with provisions of the HPP and the Kentucky Heritage Council's streetscape design guidelines.
 - Prior to initiating construction activities in this section, KYTC will ensure that the construction contractor shall develop and implement a blasting/vibration plan for the Project to avoid damage to the District as set forth in Stipulation II.L of the MOA.
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- **Country Estates Historic District/River Road Corridor – Kentucky**
 - KYTC shall develop an HPP as set forth in Stipulation II.F of the MOA which will identify the context and provide recommended measures for context sensitive design, noise abatement, roadway lighting, blasting and vibration plans, and interpretive signage which shall be implemented as part of the Project to mitigate adverse effects to the Historic District and individual properties within the vicinity of the construction of the Alternative A-15 Corridor. The HPP shall specifically consider and develop recommendations for the following historic properties:
 - Country Estates of River Road Historic District, including individually listed National Register properties within the District,
 - James T. Taylor/James W. Chandler House,
 - Merriwether House,
 - Upper River Road Bridge over Harrods Creek,
 - Harrods Creek Village Historic District,
 - Schildknecht House,
 - Determan House,
 - Allison-Barrickman House,
 - St. Francis in the Fields Church,
 - Belleview, and
 - Rosewell
 - KYTC shall, in consultation with the KYSHPO and the KHPAT, design and construct the proposed roadways, bridges, and tunnels from I-71 to the Ohio River as set forth in Stipulation II of the MOA, taking into consideration the cultural landscapes that are an important contributing element to the Historic District. Special attention will be given to viewsheds that are significantly affected and will focus on the development and implementation of creative strategies for

mitigating those impacts. This may include landscaping of public rights of way and on private land should the property owner's consent be given.

- KYTC shall design and construct Project roadway lighting within the viewshed of the historic district as set forth in Stipulation II.D of the MOA.
 - KYTC shall implement noise abatement measures where project noise is expected to affect the listed and eligible properties as set forth in Stipulation III.M.1.a – k in accordance with Stipulations II.E of the MOA.
 - Prior to initiating construction activities, KYTC shall ensure that construction contractors shall develop and implement blasting/vibration plans for this portion of the Project to avoid damage to the listed and eligible properties as set forth in Stipulation III.M.1.a – k, including the Strater House, in accordance with Stipulation II.L of the MOA.
 - KYTC shall define a “no-work zone” within the NRHP boundaries of the listed and eligible properties as set forth in Stipulation III.M.1.a – k in accordance with Stipulation II.N of the MOA.
- **Drumanard – Kentucky**
 - The Project through this property will be contained in a tunnel so as to limit adverse effects to the historic property.
 - Prior to initiation of construction activities on the Alternative A-15 Corridor, FHWA shall make every effort to acquire or otherwise establish an historic preservation easement for the entire Drumanard historic property as set forth in Stipulation II.H of the MOA. The easement shall be held by the KYSHPO.
 - If FHWA cannot acquire an historic preservation easement, then FHWA will acquire the Drumanard property, place an historic preservation easement on the property, and transfer the property to KYTC who shall seek to sell the property at fair market value to a preservation organization or other party acceptable to the Bi-State Historic Consultation Team or donate the property to a local government. The current owner will have first right of refusal.
 - Prior to initiating construction activities, KYTC will ensure that the construction contractor shall develop and implement a blasting/vibration plan for the Project to avoid damage to the historic structures within the property as set forth in Stipulation II.L of the MOA. During construction activities on and around the property, KYTC shall monitor the historic buildings to preclude impacts due to blasting or vibration.
 - **Allison-Barrickman House – Kentucky**
 - KYTC shall make reasonable efforts to acquire a preservation easement on the tract of land within the NRHP boundary of the Allison-Barrickman house and an easement on the property bounded by U.S. 42, S.R. 841, the Allison-Barrickman property, and Wolf Pen Branch Road, as set forth in Stipulation II.H of the MOA.
 - KYTC shall implement noise abatement measures as set forth in Stipulation II.E of the MOA.

- KYTC shall define a “no-work zone” within the NRHP boundary of the property as set forth in Stipulation II.N of the MOA.
- Prior to initiating construction activities, KYTC shall ensure that construction contractors shall develop blasting/vibration plans for this portion of the Project to avoid damage to the Allison-Barrickman house as set forth in Stipulation II.L of the MOA.
- **Rosewell – Kentucky**
 - Prior to the initiation of construction activities on the Alternative A-15 Corridor, KYTC shall develop and implement a Treatment Plan in consultation with the KYSHPO, FHWA, and KHPAT to minimize damage to the historic property.
 - KYTC shall make every reasonable effort to acquire the Rosewell property at the fair market value and from a willing seller.
 - Immediately following its acquisition, KYTC shall place a preservation easement on the property, as set forth in Stipulation II.H of the MOA, and sell the property to a local historic preservation organization or other party acceptable to the Bi-State Historic Consultation Team or donate the property to a local government. KYSHPO shall hold the easement. If sold, the current owner will have first right of refusal.
 - KYTC shall design and construct roadway lighting as set forth in Stipulation II.D of the MOA.
 - KYTC shall implement noise mitigation measures as set forth in Stipulation II.E of the MOA.
 - Prior to initiating construction activities, KYTC shall ensure that the construction contractors shall develop blasting/vibration plans for this portion of the Project to minimize damage to the house as set forth in Stipulation II.L of the MOA.
 - KYTC shall define a “no-work zone” within the NRHP boundary of the property as set forth in Stipulation II.N of the MOA.
- **Bellevue – Kentucky**
 - KYTC shall design the Ohio River bridge and embankment adjacent to Bellevue, as set forth in Stipulation II of the MOA, taking into account the cultural landscape associated with this historic property. Context sensitive landscaping and other visual treatments, in accordance with Stipulation II.C, will be considered on or adjacent to the NRHP boundary, with owner consent and maintenance.
 - KYTC shall design and construct roadway lighting within the viewshed of Bellevue as set forth in Stipulation II.D of the MOA.
 - KYTC shall implement noise mitigation measures as set forth in Stipulation II.E of the MOA.
 - Prior to initiating construction activities, KYTC shall ensure that construction contractors develop blasting/vibration plans for this portion of the Project to avoid damage to the historic buildings as set forth in Stipulation II.L of the MOA.

- KYTC shall define “no-work zones” within the NRHP boundary of the historic property as set forth in Section II.N of the MOA.

Archaeological Resources

- **Implementation Standards**

- In implementing Stipulation IV of the MOA, FHWA may withhold or limit public disclosure of information about historic properties in accordance with Section 304 of the National Historic Preservation Act (NHPA) and 36 CFR §800.6(a)(5) and 36 CFR §800.11 (c).
- FHWA shall ensure that consultation with Indian Tribes is conducted in a manner which is consistent with 36 CFR §§ 800.2 (c)(2)(ii)(A), (B), and (C). Using the phrase “Indian Tribes when appropriate” means to consult with an Indian tribe that might attach religious and cultural significance to an historic property.
- In order to maximize the opportunity to avoid adverse effects, FHWA will make every effort to complete identification and evaluation of archeological resources at the earliest possible time in Project design.
- In implementing Stipulation IV of the MOA, FHWA may consult with the parties listed in Attachment F and others identified in accordance with 36 CFR §800.2(c)(2)(ii) and 36 CFR §800.2(c)(5).
- FHWA, in consultation with the SHPOs, Indian Tribes when appropriate, and other parties deemed appropriate by FHWA, will take reasonable measures to avoid disinterment and disturbance to human remains and grave goods of religious and cultural significance to Indian Tribes, including modification of the Project.

- **Identification**

- Before letting any type of Project construction in the APE or selecting sites for ancillary activities associated with the Project, FHWA shall complete the identification and evaluation of archeological resources for inclusion in the NRHP in accordance with applicable Federal and state standards and guidelines listed in Stipulation VIII.B of the MOA.
- FHWA shall examine all locations where ground-disturbing activities are proposed or where they may occur within temporary easements and permanent right of way. These locations may include, but are not limited to, roadway cuts and fills, bridge foundations, tunnel shafts, drainage excavations, waste areas, borrow sites, dredge disposal sites, construction staging areas, storage areas, and wetland and other mitigation sites.
- In ensuring that any human remains and grave goods identified are treated in a sensitive, respectful and careful manner, FHWA shall be guided by the ACHP’s Policy Statement Regarding Treatment of Human Remains and Grave Goods (September 27, 1988), and where appropriate other guidelines, such as the Eastern Band of Cherokee Indians (EBCI) Treatment Guidelines for Human Remains and Funerary Objects, and the following conditions:

- FHWA will make every reasonable effort to avoid disinterment or disturbance of human remains and grave goods during identification and evaluation.
- FHWA will make a reasonable and good faith effort to determine the location, cultural/temporal period, and cultural affiliation of human remains and/or grave goods without any removal or destructive analysis of these remains. If, in consultation with the SHPOs, Indian Tribes when appropriate, and other parties deemed appropriate by FHWA, FHWA determines that this information cannot be obtained without disturbance to the human remains and/or grave goods, FHWA may remove the remains for study.
- FHWA will ensure that human remains and/or grave goods are not photographed or subject to invasive study during the identification and evaluation phases.
- In the event that human remains and/or grave goods that may be of religious or cultural significance to Indian Tribes are identified, FHWA shall provide written notification and documentation to the appropriate SHPO, Indian Tribes, and other parties deemed appropriate by FHWA who have requested such notification within 48 hours following the identification, and shall consult with them to determine a specific protocol for addressing the possible analysis, interim curation, and, if necessary, the reburial of the remains.
- A Plan(s) for the identification and evaluation of archeological resources will be developed by FHWA in consultation with the SHPOs, Indian Tribes when appropriate, and other parties determined appropriate by FHWA. Preparation of the Plan(s) for identification and evaluation will be guided by each state's standards for conducting fieldwork and reporting and the archeological component of each state's HPP.
 - FHWA shall provide the SHPOs, Indian Tribes when appropriate, and other parties deemed appropriate by FHWA, thirty (30) calendar days from the day of confirmed receipt, to review and provide comments on the Plan(s). The final Plan(s) shall address comments received.
 - If no response is received within 30 days of confirmed receipt, FHWA may proceed with its Plan(s).
 - Any dispute regarding the Plan(s) shall be resolved in accordance with Stipulation XIII of the MOA.
- FHWA shall prepare and distribute final Identification and Evaluation reports in accordance with Stipulation IV.F of the MOA.
- **Evaluation**
 - The studies completed pursuant to Stipulation IV.B of the MOA shall demonstrate a level of effort consistent with 36 CFR § 800.4(b)(1) and provide FHWA with the information to determine which archeological resources are eligible for inclusion in the NRHP in accordance with 36 CFR § 800.4(c). The FHWA shall acknowledge and seek the special expertise of Indian Tribes in assessing the

eligibility of historic properties that may possess religious and cultural significance to them.

- If the FHWA determines any of the NRHP criteria are met and the appropriate SHPO agrees, the archeological resource shall be considered eligible for the NRHP and treated in accordance with the Stipulations IV.D and IV.E of the MOA.
 - If FHWA and the appropriate SHPO do not agree on NRHP eligibility, the FHWA shall seek a formal determination of eligibility from the Keeper of the NRHP.
 - If FHWA and the SHPO agree that the archeological resource is not NRHP eligible, then no further action is necessary under the terms of this MOA unless there is a written objection submitted in accordance with Stipulations IV.C.5 and IV.C.6 of the MOA.
 - FHWA shall notify the Indian Tribes and other parties whom so request of its findings regarding eligibility.
 - If a party who has been so notified objects in writing within 15 days to FHWA's determination of eligibility, even though FHWA and the appropriate SHPO may agree, FHWA shall reconsider its determination, consult with the appropriate SHPO, Indian Tribes, and the objecting party in accordance with 36 CFR § 800.4 (c)(2), and review any evidence brought forward prior to making a decision.
- **Assessment of Effects**
 - In consultation with the SHPOs, Indian Tribes when appropriate, and other parties deemed appropriate by FHWA, the FHWA shall determine if the Project will adversely affect archeological resources determined eligible for inclusion in the NRHP pursuant to 36 CFR § 800.5, including those archeological sites identified in Attachment D.
 - If, in consultation with the SHPOs, Indian Tribes when appropriate, and other parties deemed appropriate by FHWA, FHWA determines the Project may adversely affect eligible archeological resources; the FHWA shall make reasonable efforts to avoid or minimize the adverse effect. If, in consultation with the SHPOs, Indian Tribes when appropriate, and other parties deemed appropriate by FHWA, FHWA determines it is not possible to avoid disturbance, then FHWA shall treat the archeological resource in accordance with Stipulation IV.E of the MOA.
 - Any dispute regarding the determination of effects on eligible archaeological resources shall be resolved in accordance with Stipulation XIII of the MOA.
 - **Treatment**
 - If FHWA, in consultation with the SHPOs, Indian Tribes when appropriate, and other parties determined appropriate by FHWA, determines that the adverse effect cannot be avoided or minimized, then the FHWA shall develop and implement a Treatment Plan(s), as part of the above consultation, to mitigate the adverse effects to an archeological resource on a site-by-site basis. The implementation of the Treatment Plan must be completed for each site prior to the initiation of any

Project construction activities within a segment that could affect that site. The Treatment Plan(s) shall specify at a minimum:

- Description of the historic properties or portions of historic properties where treatment will be carried out,
 - Description of any historic property or portion thereof that will be adversely affected without treatment for such action,
 - Methods for site preservation/protection,
 - Research questions to be addressed through data recovery with a clear and explicit discussion of their scientific justification and an explanation of their relevance and importance, which is guided by the archeological component of the respective state's HPP.
 - Field methods to be used with an explanation of their relevance and applicability to the scientific research questions,
 - Methods to be used in data analysis, data management and dissemination of data, including a schedule,
 - Plans for the treatment of human remains and grave goods developed in accordance with Stipulation IV.E.2 of the MOA,
 - Plans for curation of recovered materials and records,
 - Provisions for reburial of human remains and grave goods where appropriate, including timeframes for analysis and reburial,
 - Plans for public education and interpretation,
 - Plans for keeping the SHPOs, Indian Tribes, and other appropriate parties informed of work progress and findings, and
 - A schedule for the submission of reports and other deliverables.
- Plans addressing the treatment of human remains and grave goods, as provided for in Stipulation IV.E.1.g of the MOA, shall be guided by the ACHP's Policy Statement Regarding Treatment of Human Remains and Grave Goods (September 27, 1988), and where appropriate other guidelines, such as the Eastern Band of Cherokee Indians (EBCI) Treatment Guidelines for Human Remains and Funerary Objects. In determining how to treat human remains and grave goods, FHWA shall also be guided by the following considerations:
 - Burials that will not be threatened or disturbed by the Project shall not be disinterred or disturbed through scientific study.
 - If disturbance cannot be avoided, FHWA will determine if scientific study of the human remains, grave goods and the burial matrix will be conducted by carefully weighing the contribution of scientific study against the religious and cultural significance ascribed to the remains on a site-by-site basis in consultation with the SHPOs, Indian Tribes when appropriate, and other parties determined appropriate by FHWA. FHWA's decision to conduct scientific study of human remains, grave goods, and burial matrix must be supported by an explicit set of definitive and justified research questions on a case-by-case basis.
 - Human remains and funerary objects of religious and cultural significance to Indian Tribe(s) may be photographed only when FHWA in consultation

with the SHPOs, Indian Tribes when appropriate, and other parties determined to be appropriate by FHWA, determines that it is called for and justified in a site-specific treatment plan to support scientific study. Detailed drawings and sketches may be developed.

- Human remains and/or grave goods, which have been disinterred, should be reburied as soon as possible, in a timeframe, location, and manner determined appropriate by FHWA, on a case-by-case basis in consultation with the SHPOs, Indian Tribes when appropriate, and other parties deemed appropriate by FHWA. The dates, times, and location of disinterment and reburial should be considered sensitive and confidential and will be subject to restrictions under Stipulation IV.A.1 of the MOA.
- Human remains and grave goods shall be made available for reburial to the appropriate party or responsible official within thirty (30) days of any determination made pursuant to this stipulation to rebury human remains and grave goods or the date for such reburial specified in any time frame agreed upon under this stipulation.
- FHWA shall provide ACHP, the SHPOs, Indian Tribes who have expressed interest in the site, and other parties deemed appropriate by FHWA, thirty (30) calendar days to review and provide comments on the Treatment Plan(s) developed in accordance with Stipulation IV.E of the MOA. FHWA shall ensure that the final Treatment Plan(s) takes into consideration comments received. FHWA may provide other consulting parties, as appropriate, an opportunity to review and comment on the proposed Treatment Plan(s). If no response is received within thirty (30) days of confirmed receipt, FHWA may proceed with the Treatment Plan(s).
- Any dispute regarding the Treatment Plan(s) shall be resolved in accordance with Stipulation XIII of the MOA.
- After implementing the above stipulations for treatment, FHWA may elect to monitor construction activities in selected portions of the right of way. Monitoring shall be conducted by an archeologist meeting the qualification standards in Stipulation IV.F.1 of the MOA. In deciding whether to conduct monitoring, FHWA shall consider the likelihood of identifying additional archeological resources and any recommendations provided by the SHPOs, Indian Tribes, and other participating parties. Any archeological resources identified during construction monitoring will be treated in accordance with Stipulation V of the MOA.
- **Qualifications and Reporting**
 - In consultation with the SHPOs, FHWA shall ensure that all archeological work carried out pursuant to this MOA is performed by, or under the direct supervision of, a person or persons meeting *Secretary of the Interior's Professional Qualification Standards* in archeology and who has supervisory experience in the prehistoric and historic archeology of the lower Ohio Valley.
 - FHWA shall ensure the results of all archeological studies performed under the terms of this MOA are presented in professionally written reports meeting the

standards for fieldwork, laboratory work, analysis, and report preparation that have been established by the SHPOs for each state.

- FHWA, INDOT, KYTC, SHPOs, contractors, consultants, and Indian Tribes shall ensure that sensitive information regarding the nature and location of human remains and grave goods, and the location, character, and ownership of archeological sites is kept confidential from the public, in accordance with Section 304 of the NHPA and 36 CFR § 800.11(c).
 - The ACHP, SHPOs, Indian tribes, and other parties deemed appropriate shall have thirty (30) days after confirmed receipt to review and comment on the written reports. The FHWA shall address all comments received in the final written reports.
 - Any dispute regarding the report(s) shall be resolved in accordance with Stipulation XIII of the MOA.
- **Distribution of Final Reports**
 - Upon completion of work, the FHWA shall provide copies of final reports to the respective SHPOs, STAs, and Indian Tribes when appropriate.
 - The FHWA, in consultation with the appropriate SHPO, shall prepare sufficient copies of final reports completed pursuant to this MOA for dissemination to the public libraries, educational institutions, and other repositories in Jefferson and Clark Counties and Indian Tribes as appropriate.
 - FHWA will ensure that all final archaeological reports for public dissemination do not contain sensitive information regarding the nature and location of human remains and grave goods, and the location, character, and ownership of all archaeological sites as provided for in Section 304 of the NHPA and 36 CFR §800.11(c).

Funding for five project associated planning/design enhancements will also be included in the Project to support integration of project elements into the downtown development plan.

- (1) Kennedy Interchange: East Louisville Downtown Area Planning – KYTC has agreed to transfer ownership of 40-45 acres of excess right-of-way to the city of Louisville for use by the Waterfront Development Corporation. Fifteen acres (out of 40-45 acres) will serve as mitigation for project impacts to parks. Funding in the amount of \$450,000 will be provided for planning and design analysis of urban design elements for the East Louisville Downtown Area relating to the reconstruction of the Kennedy Interchange. This effort will build upon the 2002 Louisville Downtown Development Plan. The following elements will be included in this analysis:

- Planning for opportunities to integrate the project into surrounding neighborhoods, downtown, and Waterfront Park.
- Recommendations of appropriate locations for potential construction staging areas, including efforts to remove and/or relocate existing nuisance uses and return them to the community as new infill development sites post-construction.

- Identification of reclamation requirements for reuse of existing Kennedy Interchange right-of-way.
 - Development of future land use plan for existing Kennedy Interchange right-of-way consistent with the other provisions in this document and the Memorandum of Agreement for Historic Properties.
 - Development of improved surface street access to the Louisville Medical Center, the region's foremost hub of medical services and facilities, including its only secondary and tertiary care treatment centers.
- (2) Downtown/West Louisville Access Planning – Funding in the amount of \$150,000 will be provided for the development of a pedestrian and vehicular access plan for the Louisville Central Business District and West Louisville Area. This effort will build upon the 2002 Louisville Downtown Development Plan. The plan will define opportunities to improve pedestrian and vehicle access within the redesigned Kennedy Interchange and its I64 west approach and will focus on reconnection to the waterfront. The following elements will be included in this analysis:
- Improvement to the arterial road system in proximity to existing and new highway ramps to provide better flow of traffic on the surface street system. Particular attention will be paid to improving connections from west Louisville.
 - Improvement of connections to and from the central business district and west Louisville under and through the existing and proposed Interstate facilities, including improved connections to the West Main Street Cultural Arts District, a major entrance point into the central business district.
- (3) Minority Historic Rehabilitation Craftsman Training Program – Funding in the amount of \$1,500,000 will be included in the Project for the establishment of a five year Disadvantaged Minority Craftsman Training Program in Historic Preservation. Due to the small number of available persons in the area trained in the crafts necessary for the rehabilitation historic properties, this project will establish a program that will train disadvantaged individuals in the necessary techniques and skills required for preservation and rehabilitation of historic structures. The Historic Preservation Plans developed for the historic properties impacted by this project will identify opportunities for rehabilitation of historic structures where these craftsmen could be employed. This program will be headquartered at the Trolley Barn, site of the proposed Kentucky Center for African-American Heritage in West Louisville. The start-up cost is \$900,000 during the first year with an annual operating cost for the program of \$120,000 for five (5) years. The start-up cost includes site preparation and construction for Building C of the Trolley Barn complex for offices and training facilities. Oversight of this effort will be by FHWA, KYTC, KY SHPO and other groups as invited.
- (4) Rehabilitation of Trolley Barn Buildings in West Louisville – Funding in the amount of \$10 million will be included in the Project for the restoration and adaptive reuse of the Trolley Barn. The Kentucky Center for African-American Heritage will be located in the Rehabilitated Trolley Barn Buildings. This complex is located at 17th Street and Muhammad Ali Boulevard in West Louisville.

The overall goal of the Kentucky Center for African American Heritage is to create a new focal point that includes a mixture of cultural, social, and educational programs as well as retail stores in a complex that is perceived as culturally significant. New and existing retail businesses that compliment the cultural arts emphasis will be encouraged to locate in the facility. Educational and entertainment exhibits, which tell the story of famous and historically significant African Americans from Louisville and the surrounding region, will showcase their contributions to the community's history, and also focus on culturally and regionally unique characteristics.

This project will provide \$800,000 for ten (10) years and \$1,000,000 for the final two years beginning in 2005. The Louisville-Jefferson County Metro Government in cooperation with the Kentucky African American Heritage Foundation, the KY-SHPO, KYTC, and FHWA will administer this restoration of Trolley Barn buildings. See Table 8.4-1 for the schedule of proposed funding.

TABLE 8.4-1
FUNDING OUTLAYS FOR HISTORIC REHABILITATION CRAFTSMAN TRAINING PROGRAM AND REHABILITATION OF TROLLEY BARN BUILDINGS IN WEST LOUISVILLE

Year	Craftsmen	Trolley Barn	Total
2004	\$900,000	N/A	\$900,000
2005	\$120,000	\$800,000	\$920,000
2006	\$120,000	\$800,000	\$920,000
2007	\$120,000	\$800,000	\$920,000
2008	\$120,000	\$800,000	\$920,000
2009	\$120,000	\$800,000	\$920,000
2010		\$800,000	\$800,000
2011		\$800,000	\$800,000
2012		\$800,000	\$800,000
2013		\$800,000	\$800,000
2014		\$800,000	\$800,000
2015		\$1,000,000	\$1,000,000
2016		\$1,000,000	\$1,000,000
Total	\$1,500,000	\$10,000,000	\$11,500,000

- (5) Clark County Planning – INDOT will fund a \$300,000 grant for Clark County that will be used to accomplish one or more of the following objectives:

- Hiring professional planning consultants to revise our county's comprehensive plan, zoning maps, zoning code, and subdivision control ordinance;
- Developing strategies for funding on-going planning and zoning functions (such as writing an impact fee ordinance or other code requirements that collect money from developments to fund inspections, road widening, needed infrastructure, and the like);
- Creating a public education campaign; and, in general,

- Developing other strategies to encourage wise, aesthetically pleasing, environmentally protective, history-minded, and economy generating "smart" growth in the areas affected by the bridge construction.

II. Avoidance Commitments

These mitigation measures will be advanced through the design and construction phases of project development.

- **Alternative C-1** has been located as close as feasible to the existing I-65 crossing to minimize impacts to the Greenway Corridor and Ashland Parks.
- The ramps and structures have been located so they will minimize impacts to the Extreme Sports Complex.
- **Alternative A-15** has been shifted to the northeast to avoid any use of the Allison-Barrickman property.
- The **Relocated option** connector ramps along I-64 have been shifted as close as feasible to existing I-64 so that they will now miss all five of the contributing structures in the Butchertown Historic District that were shown in the DEIS as being displaced. The ramps along I-65 were also designed as close as feasible to the existing facility.
- **Alternative C-1** will be built over currently undeveloped (although planned) Waterfront Park property which is presently being used for industrial purposes (asphalt transfer facility), and has been located as close as practicable to the existing I-65 crossing to minimize impacts to the planned park property.

III. Section 106 Memorandum of Agreement (MOA)

IV. Biological Assessment (BA)

MEMORANDUM OF AGREEMENT (MOA)
AMONG
THE FEDERAL HIGHWAY ADMINISTRATION,
THE ADVISORY COUNCIL ON HISTORIC PRESERVATION,
THE INDIANA STATE HISTORIC PRESERVATION OFFICER, AND
THE KENTUCKY STATE HISTORIC PRESERVATION OFFICER,
REGARDING THE
LOUISVILLE – SOUTHERN INDIANA OHIO RIVER BRIDGES PROJECT IN
CLARK COUNTY, INDIANA AND JEFFERSON COUNTY, KENTUCKY

(Project No. Item-5-118.00)

WHEREAS, the Federal Highway Administration (FHWA), in cooperation with the Indiana Department of Transportation (INDOT) and the Kentucky Transportation Cabinet (KYTC) is proposing to construct the Louisville-Southern Indiana Ohio River Bridges Project (Project) to improve cross-river mobility between Jefferson County, Kentucky and Clark County, Indiana; and

WHEREAS, the Project provides for two new bridges using Alignment C1 and Alignment A15 as described in the Project Draft Environmental Impact Statement and Final Environmental Statement (DEIS/FEIS), reconstruction of the Kennedy Interchange south of its present location, and other improvements and enhancements within the Project corridor as described in Attachment A, Project Description; and

WHEREAS, the Project DEIS/FEIS and supporting technical reports (Attachment B) provide background information to this Memorandum of Agreement (MOA); and

WHEREAS, it is understood that this MOA is based upon review of conceptual design alternatives, shown in the DEIS, which will be refined during the design development process; and

WHEREAS, the FHWA, in consultation with the Kentucky and Indiana State Historic Preservation Officers (SHPO) has delineated an Alternative Specific Area of Potential Effects (APE) as depicted in Attachment C; and

WHEREAS, the FHWA, in consultation with the Kentucky and Indiana SHPOs and the Advisory Council on Historic Preservation (ACHP) has determined that the Project will have an Adverse Effect on certain historic properties, as described in Attachment D,

pursuant to 36 CFR Part 800, regulations implementing Section 106 of the National Historic Preservation Act (NHPA), as amended (16 USC 470f); and

WHEREAS, pursuant to 36 CFR § 800.4(b)(2) and 36 CFR §800.5(a)(3), FHWA has phased the final identification, evaluation, and determination of Project effect for archeological resources because alternatives consist of large corridors where access is restricted; and

WHEREAS, FHWA has determined that the Project may adversely affect additional historic properties because sites for construction staging, wetland mitigation, borrow or waste, dredge disposal, or other ancillary activities associated with construction of the Project have not yet been selected; and

WHEREAS, FHWA acknowledges that the Project could result in indirect and cumulative effects on historic properties within the Broad APE, as depicted in Attachment E; and

WHEREAS, terms used in this MOA are defined in accordance with 36 CFR §800.16, unless otherwise indicated; and

WHEREAS, the INDOT and KYTC have participated in consultation and have been invited to be signatories to this MOA; and

WHEREAS, the Eastern Band of Cherokee Indians, Cherokee Nation of Oklahoma, United Keetoowah Band of Cherokee Indians, Absentee Shawnee Tribe of Oklahoma, Eastern Shawnee Tribe of Oklahoma, The Shawnee Tribe, the Miami Tribe of Oklahoma, Peoria Indian Tribe of Oklahoma, Delaware Nation, the Chickasaw Nation, the Wyandotte Nation, and the Citizen Potawatomi Nation have participated in consultation and have been invited to concur in this MOA; and

WHEREAS, the remaining Section 106 Consulting Parties, included in the list at Attachment F, have participated in consultation and have been invited to concur in this MOA;

NOW, THEREFORE the FHWA, the ACHP, the Indiana SHPO, and the Kentucky SHPO agree that the Project will be implemented in accordance with the following Stipulations in order to take into account the effects of the Project on historic properties.

STIPULATIONS

The FHWA will ensure that the following measures are implemented:

I. PROJECT COORDINATION

A. Advisory Teams

1. On or before December 31, 2003, FHWA and the respective State Transportation Agencies (STA) will convene an Indiana Historic Preservation Advisory Team (IHPAT) and a Kentucky Historic Preservation Advisory Team (KHPAT) to ensure the Project is designed in a manner that respects the historic qualities, landscapes, historic buildings and features within the Alternative Specific APE.
2. The Advisory Teams will assist the Bi-State Historic Consultation and Bi-State Management Teams in developing Project design details to implement the measures stipulated in this MOA.
3. Each of the Advisory Teams will be co-chaired by a representative of the respective STA and SHPO. The Co-chairs will be responsible for convening meetings of the Advisory Teams, preparing and maintaining a summary of meetings, and preparing and submitting Advisory Team recommendations to the Bi-State Historic Consultation Team for further action.
4. Representatives of the following will be invited by FHWA and the Indiana Advisory Team co-chairs to participate on the IHPAT:
 - a. City of Jeffersonville Historic Preservation Commission
 - b. Clark County
 - c. City of Jeffersonville
 - d. Town of Utica
 - e. Jeffersonville Main Street Association
 - f. Clarksville Historical Society
 - g. Town of Clarksville
 - h. Clark County Historian
 - i. Rose Hill Neighborhood Association
 - j. Historic Landmarks Foundation of Indiana
 - k. Jeff -Clark Preservation Inc.
5. Representatives of the following will be invited by FHWA and the Kentucky Advisory Team co-chairs to participate on the KHPAT:
 - a. Louisville/Jefferson County Metro Government Historic Preservation Office
 - b. Louisville/Jefferson County Metro Government
 - c. Butchertown Neighborhood Association Inc.
 - d. City of Prospect
 - e. Phoenix Hill Association Inc.
 - f. River Fields, Inc.
 - g. The National Trust for Historic Preservation

6. Additional participants may be invited to participate on the Advisory Teams at the discretion of the Advisory Team Co-chairs.
7. The ACHP may participate as it sees fit on an ad-hoc basis.
8. As soon as practical following execution of this MOA, the respective co-chairs will convene the Advisory Teams for an initial organizational, kick-off meeting to establish process and procedure for operation of the Advisory Teams.
9. The respective co-chairs will convene additional meetings at the following times to review plans, comment, and make specific recommendations regarding Project design scopes of work and details for consideration by the Bi-State Historic Consultation Team.
 - a. Prior to the development of the scopes of work for the Historic Preservation Plans (HPP) and Treatment Plans under Stipulation III;
 - b. Prior to the selection of contractors for preparation of the HPPs and Treatment Plans under Stipulation III;
 - c. Prior to the development of the scope of work for design consultant services on individual Project sections;
 - d. Prior to the preliminary plan field check inspections (about 30%);
 - e. After preliminary plans are revised, to report on how comments were addressed (about 30%);
 - f. Prior to the design approval for plans for commencement of right-of-way acquisition (about 60%);
 - g. Prior to the final plan inspections (about 90%); and
 - h. After final plans are completed, to report on how comments were addressed.
10. INDOT or KYTC, as appropriate, shall provide any materials needed for review by the Advisory Teams at least fifteen (15) days before scheduled meetings. In addition to any comments voiced in the meetings, the Advisory Team members may provide written comments to the co-chairs within fifteen (15) days following the scheduled meeting.
11. Based on comments provided by the Advisory Teams, the co-chairs will develop recommendations, which they will submit to the Bi-State Historic Consultation Team for consideration and action.

B. Bi-State Historic Consultation Team

1. Bi-State Historic Consultation Team shall consist of representatives of FHWA, INDOT, KYTC and the respective SHPOs.

2. The Bi-State Historic Consultation Team will advise the Bi-State Management Team as to appropriate design and construction approaches so as to comply with the terms and historic preservation commitments of this MOA. The Bi-State Historic Consultation Team shall make its recommendations to the Bi-State Management Team on methods, systems, and plans for Project implementation after considering recommendations provided by the Historic Preservation Advisory Teams.
3. The Bi-State Historic Consultation Team may make final decisions as delegated by the Bi-State Management Team.
4. The Bi-State Historic Consultation Team shall convene to consider the recommendations provided by the Advisory Teams and prepare recommendations for the Bi-State Management Team.
5. The Bi-State Historic Consultation Team will ensure that the comments and recommendations of the Advisory Teams are given full consideration in preparing its recommendations to the Bi-State Management Team or in reaching its final decision.

C. Bi-State Management Team

1. The Bi-State Management Team shall consist of representatives of the INDOT, the KYTC, and FHWA who shall have the authority for final approval of actions required to implement the measures to avoid, minimize, or mitigate effects to historic properties.
2. The Bi-State Management team shall ensure that consultant services procured to assist in the management of the Project include professionals with experience in the following areas: architecture, landscape architecture, historic preservation, archeology, anthropology, landscape history, as well as highway, bridge, and tunnel design to help implement the provisions of this MOA.
3. The Bi-State Management Team shall prepare progress reports, as set forth in Stipulation IX of this MOA.
4. The Bi-State Management Team shall give full consideration to the recommendations of the Bi-State Historic Consultation Team for incorporation into the final plans to the extent reasonable, feasible, and prudent.

D. Ombudsmen

1. The Bi-State Management Team will ensure that two Ombudsmen (one for Indiana and one for Kentucky), will be retained for the duration of the Project.

2. Ombudsmen should be selected who have demonstrated communication and conflict resolution skills, as well as a working knowledge of historic preservation practices as they relate to the goals of this Project.
3. The individuals selected for Ombudsmen will be responsible for communicating with the public and investigating reported problems on all aspects of the Project, including the implementation of measures set forth in this MOA. They shall report recommendations, complaints, and their findings to the Bi-State Management Team for resolution. The Ombudsmen will report findings, decisions, and resolutions as appropriate.
4. The Ombudsmen will be located in an office or offices within or close to the Project area.
5. Every reasonable effort shall be made to locate the offices of the Indiana and Kentucky Ombudsmen assigned to the Project in historic properties, such as the Train Depot in Jeffersonville, Indiana, that can be restored and preserved in association with the Project.
6. Roles and responsibilities of the Ombudsmen shall be further defined in the management plan of the Project developed by the two states and the FHWA.

II. PROJECT DEVELOPMENT

The stipulations within this section apply to the overall construction of the Project unless otherwise noted. All measures stipulated within this MOA shall be implemented as part of the Project prior to its completion. The FHWA and STAs agree to program and fund as a Project cost component, monies necessary for implementation of the measures stipulated within this MOA.

- A. **Project Goals** - The design goal of the Project is to meet the Project purpose and need while avoiding, minimizing, or mitigating adverse impacts to the environment, including adverse effects to historic properties to the extent reasonable, feasible, and prudent. Avoidance of adverse effects is the preferred treatment.
- B. **Public Involvement** - The views of the public are important and will be solicited and considered at a minimum through each state's normal transportation project development process through informational meetings to be convened by the respective STAs.

- C. **Context Sensitive Solutions** -The roadways, bridges, and other Project elements shall be designed and constructed with sensitivity to aesthetic values, historic cultural landscapes, and the historic context, utilizing the services of professionals with experience in areas related to historic preservation. Design shall include aesthetic treatments to surfaces, structures, portals, appurtenances, and land contours and landscaping that complement the historical contexts of historic properties.

- D. **Roadway Lighting** – Project roadway lighting within the viewshed of historic properties and any navigational lighting required on structures included in the Project shall be designed and constructed to minimize the dispersion of light beyond the highway right of way and include state-of-the-art techniques and systems, such as Full Cutoff Optics (FCOs) or other similar systems, to the extents that are required to ensure safe roadway lighting designs, and navigation required by the U. S. Coast Guard and the Federal Aviation Administration. .

- E. **Noise Abatement** – The Project shall be designed so as to minimize adverse noise effects on historic properties in accordance with state and federal noise regulations, policies, and guidance, including special consideration of enhanced noise abatement measures for historic properties. Noise abatement measures shall be designed and implemented utilizing state-of-the-art methods and systems to minimize adverse noise effects on historic properties, such as innovative pavement designs, bridge decks and joints, berms, noise barriers, and landscaping. Pavements shall be designed incorporating measures and materials that contribute to quieter pavements, such as those identified through the Purdue University Quiet Pavement Research or other innovative measures and technologies, while providing durability and safe driving conditions.

- F. **Historic Preservation Plans** INDOT and KYTC, in consultation with the SHPOs and appropriate local governments, shall have HPPs prepared for historic properties and districts as set forth below and detailed in Stipulation III. The HPPs shall be prepared by a qualified consultant(s) specializing in preservation planning. The HPPs will provide a context to inform the implementation of specific mitigation measures as set forth in Stipulation III. The HPP may include recommendations for additional measures that could be implemented and funded outside this MOA.

Additional avoidance, minimization, or mitigation measures identified in the HPPs which may not have been specified in this MOA, but are found by the Historic Preservation Advisory Teams to be reasonable to incorporate into the Project will be considered by the Bi-State Historic Consultation Team and may be submitted to the Bi-State Management Team for possible implementation as part of the Project. The HPP for a property or district shall be completed prior to the preliminary field plan check inspections for the relevant section of the Project, as referenced in Stipulation I.A.9.d, unless otherwise recommended by the Bi-State Historic Consultation Team and determined appropriate by the Bi-State Management Team.

1. The HPPs will meet the following provisions:
 - a. The scopes of work for the HPPs will be developed in consultation with the respective Historic Preservation Advisory Teams.
 - b. The HPPs will be developed in consultation with owners of the historic properties and/or related neighborhoods.
 - c. Where access to privately owned property is necessary for the preparation of an HPP, consent shall be obtained prior to entry.
 - d. The HPPs shall consider and build upon existing related studies and plans, such as the Ohio River Corridor Master Plan and Louisville's Downtown Development Plan.
 - e. The HPPs shall be developed in cooperation with the appropriate local government and approved by the respective SHPO.
 - f. The HPPs will recognize the unique character, context, and historic significance of each resource/area and will identify ways to protect and enhance the historic qualities found there, particularly those related to avoidance, minimization, and mitigation of adverse Project effects.
 - g. The HPPs will consider land use, transportation patterns, and other urban/suburban related planning issues, as appropriate.
 - h. The HPP shall be presented to the relevant city/county governments and the Kentuckiana Regional Planning and Development Agency (KIPDA) for incorporation into local land use planning processes as appropriate.
2. HPPs will be developed for the following historic properties:
 - a. Old Jeffersonville Historic District
 - b. Township of Utica Historic Lime Industry
 - c. Swartz Farm Rural Historic District
 - d. James Smith Rural Historic Farmstead
 - e. Butchertown Historic District
 - f. Phoenix Hill Historic District
 - g. Country Estates of River Road/River Road Corridor

- G. **Survey Updates** – Within five years following the Record of Decision, the historic preservation documents listed below will be updated by a qualified historic preservation consultant chosen by INDOT or KYTC, as appropriate, with the information developed for the Project and in conformance with GIS or other format specified by the respective survey sponsor and SHPO.
1. Clark County Interim Report and Indiana Historic Sites and Structures Inventory of Clark County will be updated by INDOT in consultation with the INSHPO.
 2. The Jefferson County Inventory and Survey of Historic Sites in Kentucky will be updated by KYTC in consultation with the KYSHPO and the Louisville/Jefferson County Metro Government Historic Preservation Office.
- H. **Historic Preservation Easements** - Preservation easements set forth in this MOA shall be placed on the historic properties identified in Stipulation III in perpetuity by INDOT or KYTC, as appropriate, and held by a local government, local or state preservation organization, or other entity as determined by the INDOT or KYTC in consultation with the respective SHPO. A one-time, lump sum monitoring fee determined through negotiation among INDOT or KYTC, the easement holder, and the respective SHPO will be paid by INDOT or KYTC to the easement holder to monitor and enforce the preservation restrictions. The Bi-State Historic Consultation Team will coordinate as necessary with INDOT or KYTC land acquisition personnel for the acquisition of preservation easements.
- I. **National Register Documentation and Nomination** – When stipulated for a specific property in Stipulation III, documentation required for a National Register of Historic Places (NRHP) nomination shall be prepared by a qualified historic preservation consultant selected by INDOT or KYTC, as appropriate, upon receipt of written consent from the property owner(s). The nomination, owner's written consent, and other supporting documentation shall be forwarded to the INSHPO or the KYSHPO within the first three years following the Record of Decision for the Project to secure National Register listing of the property.. INDOT or KYTC, as appropriate, will coordinate with the Bi-State Historic Consultation Team to ensure that an individual with experience in historic preservation issues participates in presenting any proposal for nomination to the property owners.

- J. **Streetscape Improvements** - Streetscape improvements, such as landscaping, tree plantings, ornamental street lighting, fencing, curbing, pavements, sidewalks, traffic calming, or other similar work, when specified in Stipulation III, shall be designed in consultation with the respective SHPO and constructed within public rights of way unless otherwise provided for in this MOA or approved by the Bi-State Management Team. Approval from the agency holding title to the right of way will be obtained prior to use, whenever required. Streetscape improvements shall be designed in conformance with recommendations of any HPP developed for the property in accordance with Stipulation III of this MOA. In the absence of an HPP, design of streetscape improvements shall be based on recommendations provided by the Bi-State Historic Consultation Team with Advisory Team input.
- K. **Interpretative Signage** - Interpretative signage, when specified in Stipulation III, shall be placed within the right of way of public streets, or on easements, to explain the significance of the historic properties, their context, and their importance to the development of the area. Approval from the agency holding title to the right of way will be obtained prior to use, whenever required. INDOT or KYTC shall coordinate the text and placement of the signs with the respective Historic Preservation Advisory Team and may implement this provision through existing state historic marker programs where determined appropriate.
- L. **Blasting and Vibration**
1. To avoid damage to historic properties, INDOT and KYTC shall ensure that construction blasting/vibration plans and bridge pier construction plans shall be developed by their contractor(s) prior to the beginning any construction activities that would require blasting or result in vibration. These construction blasting/vibration plans shall be implemented during appropriate construction activities.
 2. These plans shall be developed for those properties specified in Stipulation III with input from the Bi-State Historic Consultation Team and be coordinated with the contract documents, special provisions, and notes included in the construction plans. These plans shall include provisions for pre-and post-construction surveys, construction monitoring, and other measures to minimize harm to historic properties.

3. The Bi-State Management Team or its designee will make the determination whether damage has occurred as a result of Project activities.
4. The INDOT and KYTC shall be responsible for repair of any blast and vibration damage to historic properties. Any repairs shall be coordinated in advance with the respective SHPO to ensure they are carried out in accordance with the Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings (Secretary's Standards).
5. Where access to privately owned property is necessary for monitoring or damage repair, consent shall be obtained prior to entry.

M. Timing of Construction Activities - Provisions shall be included in the Project contracts that limit construction activities and construction noise during specific periods of time such as weekends, holidays, or special events. The Bi-State Management Team shall develop these provisions, with input from the Bi-State Historic Consultation Team and Advisory Teams.

N. No-Work Zones - A "no-work zone" will be established on construction plans within the National Register boundaries of those historic properties specified in Stipulation III of this MOA. A "no-work zone" for a historic property is an area where any potentially damaging Project activities such as storage yards, waste disposal, borrow pits, staging areas, or other related activities shall not be permitted. "No-work zones" will be designated in the plans and contract documents by note and will identify protective measures such as "temporary fencing" within right of way determined for the property through consultation with the Bi-State Historic Consultation Team.

O. Smart Growth Conference - Within three years following the Record of Decision for the Project, KYTC, in cooperation with FHWA, INDOT, ACHP, SHPOs, and appropriate local government organizations, will sponsor a Smart Growth Conference for the Louisville – Southern Indiana Region to inform local governments about the opportunities of smart growth to promote changes in local land use planning in a manner that provides for maximum efficiency within the transportation projects while promoting the preservation of historic properties within the region. The conference will involve local and national experts in the field and provide

model ordinances and other materials that can be used by local governments in the implementation of new measures for this region.

P. Education and Interpretation

1. In developing materials for public education and interpretation, FHWA will ensure that sensitive information about the location and nature of archeological resources identified in the APE is withheld or disclosure limited pursuant to Section 304 of the National Historic Preservation Act.
2. KYTC and INDOT, in consultation with FHWA, the respective SHPOs, Indian Tribes, the Advisory Teams, and other parties deemed appropriate by FHWA, shall develop a popular report, in plain English intended for the general public, describing the history, historic properties, and archeological resources identified within the APE. The parties shall consult regarding the format, content, and style of the report. FHWA shall provide an opportunity for the parties to comment on the draft(s) of the report. The parties shall have thirty (30) days from receipt of the draft to provide written comments. FHWA will consider these comments in preparing the final draft of the popular report. Copies of the final report shall be distributed to the SHPOs, parties, and public libraries and museums within the Broad APE.
3. In consultation with the FHWA, ACHP, KYSHPO, Indian Tribes, and the KHPAT, KYTC will develop an exhibit for display in the museum to be established at the Trolley Barn. The exhibit will showcase local history and the historic properties identified during the Project within a regional context and educate visitors about the Federal regulatory process. KYTC will make every effort to have the exhibit completed so that it can be presented during the National Trust for Historic Preservation Annual Conference to be held in Louisville in 2004.
 - a. KYTC will ensure that the exhibit is prepared by a professional in the development of museum exhibits.
 - b. During its preparation, KYTC will ensure that the parties shall have opportunities to review and provide comments on the proposed exhibit.

III. SITE SPECIFIC MITIGATION

A. Train Depot – Indiana

1. INDOT will include streetscape improvements within the limits of the Project and through the Spring Street frontage of the Depot consistent with Stipulation II.J. These improvements may include curbing, ornamental street lighting and tree planting developed with input from the IHPAT and recommended for the Project by the Bi-State Historic Consultation Team.
2. INDOT will make a reasonable and good faith effort to acquire this property at the fair market value and from a willing seller. If acquired, the following additional stipulations shall apply:
 - a. The building on this property will be available during the construction period to house personnel assigned to the Project and the Ombudsman included for the Indiana portion of the Project. Any other activities in the building or on the property shall be permitted only after consultation between INDOT and the INSHPO.
 - b. Any work to rehabilitate the Train Depot shall be undertaken in consultation with the INSHPO and in accordance with the Secretary's Standards.
 - c. A preservation easement shall then be placed on the property consistent with Stipulation II.H and the property shall be sold at fair market value to a preservation organization or other party acceptable to the Bi-State Historic Consultation Team or donated to a local government.
3. If INDOT is unable to acquire the property as stipulated above, INDOT shall consult with the INSHPO to identify and implement alternative mitigation measures.
4. INDOT will develop documentation for and seek NRHP nomination as set forth in Stipulation II.I.
5. In consultation with the IHPAT and the INSHPO, INDOT shall develop and place interpretative signage as set forth in Stipulation II.K near the facility to explain its historic significance.

B. Colgate-Palmolive Historic District

1. INDOT will develop documentation and seek NRHP nomination as set forth in Stipulation II.I. If the property owner does not consent to NRHP listing, then INDOT shall make reasonable effort to prepare documentation for the historic district at a level to be agreed upon by the INSHPO, INDOT and the FHWA.

2. In consultation with the IHPAT and the INSHPO, INDOT shall develop and place interpretative signage as set forth in Stipulation II.K near the facility, to explain the historical importance of the site, its evolution, and its importance to the economic growth of the region.

C. Ohio Falls Car and Locomotive Company Historic District

1. INDOT will develop documentation and seek NRHP nomination as set forth in Stipulation II.I. If the property owner does not consent to National Register listing; then INDOT shall make reasonable effort to prepare documentation for the historic district at a level to be agreed upon by the INSHPO, INDOT and the FHWA.
2. In consultation with the IHPAT and the INSHPO, INDOT shall develop and place interpretative signage as set forth in Stipulation II.K near the facility, to explain the historical significance of the site, its evolution, and its importance to the economic growth of the region.
3. Prior to initiating construction activities in this section of the Project, INDOT will ensure that the construction contractor shall develop and implement a blasting/vibration plan for the Project to avoid damage to the District as set forth in Stipulation II.L.

D. George Rogers Clark Memorial Bridge

1. INDOT and KYTC shall make every reasonable effort to avoid displacement of the historic bridge pylons on the Indiana approach to the Clark Memorial Bridge (US 31).
2. In the event displacement of the bridge pylons cannot be avoided, the INDOT and KYTC, in consultation with FHWA and the Historic Preservation Advisory Teams, shall develop and implement a Treatment Plan which will include measures designed to minimize damage to the original contributing elements to the structure, including retaining walls and administration building. The Treatment Plan shall include documentation on the original bridge pylons, retaining walls and other features within the Project limits at a level to be agreed upon by the parties noted above, and shall include recommendations for historically appropriate lighting where it is necessary to replace the existing fixtures.

3. The INDOT and KYTC shall make every reasonable effort to relocate the pylons in a way that will ensure protection of the NRHP designation for the bridge.

E. Old Jeffersonville Historic District

1. INDOT shall have an HPP developed for the property as set forth in Stipulation II.F. The HPP will provide a context and other information for use in developing streetscape improvements, relocating contributing houses, and designing pedestrian friendly facilities under the bridges as outlined below. The HPP shall also include guidelines and/or best practices for the selection and implementation of noise abatement measures in a manner so as not to compromise the historic integrity of the district.
2. The HPP will be presented to the City of Jeffersonville for potential use as a component of the City's Comprehensive Plan and to inform the community and local government of additional historic preservation threats and opportunities.
3. INDOT will design and construct streetscape improvements along city streets within the historic district between Spring Street and the Project, as set forth in Stipulation II.J, taking into consideration the type of improvements already underway by the City of Jeffersonville on Spring Street.
4. INDOT shall design and construct pedestrian friendly facilities within Indiana right of way under the new bridge and existing John F. Kennedy Bridge. These facilities shall include amenities such as public art, lighting, and other treatments as set forth in Stipulation II.J and will be in keeping with the context identified in the HPP for the Old Jeffersonville Historic District.
5. The INDOT and KYTC shall minimize spacing between the proposed new downtown bridge along the C-1 alignment and the existing John F. Kennedy (I-65) Bridge consistent with prudent engineering principles.
6. INDOT and KYTC will develop and implement a highway signage plan that minimizes the number of overhead directional signs on the approach spans to the bridge, while preserving and improving highway safety.
7. INDOT, in consultation with INSHPO and FHWA, will make a reasonable effort to relocate the five contributing structures that would otherwise be demolished by the Project, including those located at 115 Fort Street, 116 Fort Street, 502 West Market Street, 432 West Riverside Drive, and 502 West Riverside Drive, to available vacant lots within the historic district.

- a. During the acquisition phase, the INDOT, in consultation with the INSHPO, will make a reasonable effort to purchase vacant lots within the historic district from a willing seller at fair market value, then move and place the houses on new foundations in accordance with the approaches recommended in *Moving Historic Buildings* (John Obed Curtis, 1979, American Association for State and Local History), and by a professional who has the capability to move historic buildings properly. The relocated buildings will be made available for sale at fair market value on the open market.
 - b. INDOT shall place a preservation easement on these relocated historically significant houses as set forth in Stipulation II.H.
 - c. INDOT shall stipulate through a covenant that the purchaser must occupy the house for 5 years and maintain the property in accordance with preservation standards acceptable to the INSHPO.
- 8. If INDOT is unable to obtain suitable property within the historic district for the relocation of any of the structures referenced above, INDOT, in consultation with the INSHPO, shall prepare and implement a marketing plan to market the building(s) for relocation by others at a nominal fee.
 - a. The plan shall include information about the building(s), including photographs and information on the property's significance, cost, and tax benefits of rehabilitation; notification that the recipient will be required to rehabilitate the building(s) in accordance with the Secretary's Standards; a distribution list of potential purchasers or transferees; an advertising plan and schedule; and a schedule for receiving and reviewing offers.
 - b. Upon INSHPO's agreement with the marketing plan, INDOT shall implement the plan for a minimum of six months.
 - c. INDOT shall review all offers in consultation with INSHPO prior to acceptance.
- 9. If there is no acceptable offer that will conform to the requirements for rehabilitation and maintenance, INDOT, with the approval of INSHPO, may donate the property to a local government.
- 10. INDOT shall design and construct roadway lighting in the viewshed of the historic district as set forth in Stipulation II.D.
- 11. INDOT shall implement noise abatement measures where Project noise is expected to affect the historic district as set forth in Stipulation II.E.
- 12. Timing of construction activities shall be scheduled and provisions included in the plans by the Bi-State Historic Consultation Team in

accordance with Stipulation II.M and with input from the Advisory Teams, so as to limit construction activities which may result in additional impacts to the historic district.

13. Prior to initiating construction activities, INDOT shall ensure that construction contractors shall develop and implement blasting/vibration plans for properties abutting the Project to avoid damage to listed and eligible historic properties in accordance with Stipulation II.L.

F. INAAP Igloo Storage Historic District

Prior to initiating construction activities, INDOT will ensure that the construction contractor will develop and implement a blasting/vibration plan for the Project in consultation with the Department of the Army, INAAP Re-Use Authority, and the INSHPO to avoid damage to this property as set forth in Stipulation II.L. This plan shall include provisions for blast monitoring and repair if the Department of the Army grants permission and access.

G. Lentz Cemetery

1. Prior to initiating construction activities, INDOT will ensure that the construction contractor will develop a blasting/vibration plan for the Project to avoid damage to this property as set forth in Stipulation II.L.
2. INDOT will design the section of roadway adjacent to the cemetery to minimize noise impacts to this property and complement the refinement with landscaping within the public right of way whenever appropriate.

H. Lime Kilns within the Utica Lime Industry Multiple Property Listing

1. INDOT shall develop a HPP in accordance with Stipulation II.F to include a Context Study focusing on the development of the lime industry within the region and including the identification of significant lime industry structures with recommendations for preservation of the history of the lime industry in Utica Township/Southern Indiana. In consultation with the INSHPO, INDOT will develop and publish a pamphlet for public distribution presenting the results of the lime industry study.
2. Prior to initiating any construction activities within 1,000 feet of the lime kilns, INDOT shall prepare a Condition Report of these

resources that includes photographs to serve, in part, as a baseline to measure any construction related damage that may occur to the kilns. The documentation shall be at a level agreed upon between INDOT and INSHPO.

3. Prior to initiating construction activities, INDOT will ensure that the construction contractor shall develop and implement a blasting/vibration plan for the Project to avoid damage to the three lime kilns identified as IE-HC-48002, IE-HC-48003, and IE-HC-48004 as set forth in Stipulation II.L. The location of these three kilns shall be noted in the plans for the contractor's use to protect these resources. This plan shall include provisions for construction monitoring for this property.
4. INDOT shall delineate a "no-work zone" around the three lime kilns, noted above, as set forth in Stipulation II.N. The "no-work zone" shall generally extend 100 feet from the kilns.
5. The INDOT shall repair any damage caused as a result of Project construction to the three lime kilns, noted above, in accordance with accepted preservation standards and in consultation with the INSHPO.
6. INDOT shall make a reasonable effort to acquire the lime kiln identified as IE-HC-48004 during the right-of-way phase of the Project if the Bi-State Historic Consultation Team deems it necessary to preserve the resource. Should the lime kiln be acquired, a preservation easement as set forth in Stipulation II.H will be placed on the property and it will be sold at fair market value to a preservation organization or donated to a local government. In consultation with the INSHPO, INDOT shall implement stabilization measures in accordance with the Secretary's Standards prior to its sale.
7. INDOT, in consultation with INSHPO, will develop and place an interpretive marker along Utica Pike as set forth in Stipulation II.K that describes the importance of the lime industry in the area and the significance of the kilns.
8. INDOT will develop documentation for and seek NRHP nomination for the lime kilns as set forth in Stipulation II.I.

I. Swartz Farm Rural Historic District

1. INDOT shall develop a thematic context study for agriculture in Clark County, Indiana, and surrounding counties to assist with future nominations in the region.
2. INDOT will, in consultation with the INSHPO, purchase that portion of the Swartz Farm lying on the west side of the Project that includes the house, barn, and associated outbuildings.

3. Prior to initiating construction activities, INDOT will ensure that the construction contractor shall develop and implement a blasting/vibration plan for the Project to avoid damage to this portion of the Swartz Farm as set forth in Stipulation II.L.
4. INDOT will develop documentation for that portion of the Swartz Farmstead defined above and seek NRHP nomination of the remaining farmstead as set forth in Stipulation II.I.
5. INDOT shall delineate a “no-work-zone” around the remaining Swartz farmstead, as set forth in Stipulation II.N.
6. INDOT will place a preservation easement on the property as set forth in Stipulation II.H and sell the property to a historic preservation organization or donate the property to a local government or historic preservation organization. If neither a local government nor preservation organization is willing to accept title to the property, it may be sold to anyone who would accept the property’s preservation easement. If sold, the current owner will have first right of refusal.
7. In consultation with the INSHPO, INDOT shall prepare archival documentation of the Central Passage House prior to its demolition.
8. In consultation with the INSHPO and FHWA., INDOT will develop and implement a landscaping plan for the property to minimize visual impacts of the Project paying particular attention to the roadway and SR 62 interchange.
9. INDOT will accept by donation and preserve that portion of the James Smith Farm (#45024) that was determined eligible for the National Register as a rural historic farmstead. If the property is donated, the following stipulations will apply:
 - a. In consultation with the INSHPO, INDOT shall develop and implement a plan to stabilize the property to ensure that it retains its historic integrity until such time as it can be transferred to a new owner.
 - b. INDOT will place a preservation easement on the property as set forth in Stipulation II.H and sell the property at fair market value to a preservation organization or other party acceptable to the Bi-State Historic Consultation Team or donate the property to a local government. If sold, the current owner will have first right of refusal.
 - c. Prior to the sale or donation of the property, INDOT shall fund the exterior rehabilitation of the structure to a level consistent with the Secretary’s Standards.
 - d. INDOT shall develop an HPP for the James Smith Farm as set forth in Stipulation II.F. The HPP will include strategies and recommendations for treatment and rehabilitation of the residence and grounds, reuse of the

property for public use, and maintenance by a local or regional preservation organization, or local government acceptable to the INDOT and INSHPO.

- e. INDOT will develop documentation for and seek NRHP nomination and listing as set forth in Stipulation II.I.

J. Trolley Barn

KYTC will ensure that any rehabilitation of the Louisville Railway Complex (Trolley Barn), associated with Project, shall be developed and implemented in consultation with the KYSHPO to ensure that plans are in conformance with the Secretary's Standards for Rehabilitation.

K. Butchertown Historic District

1. KYTC shall develop an HPP for the property as set forth in Stipulation II.F. The HPP shall include recommended measures for context sensitive design, noise abatement, streetscape improvements, connectivity to the river, and interpretive signage which shall be implemented as part of the Project to mitigate adverse effects to the historic district and provide additional strategies for rehabilitation and reuse of buildings and grounds that could enhance the district. The HPP shall develop a thematic context to assist with future nominations in the region. The HPP shall be coordinated with the latest development plans available from the Louisville/Jefferson County Metro Government (Metro Government) that affect the historic district and East Downtown area.
2. KYTC shall develop the Witherspoon Extension in accordance with provisions of the HPP as the principal east-west route through the historic district; and implement measures that encourage north-south traffic through the historic district to use Clay Street and Frankfort Avenue.
3. In consultation with the KHPAT, KYTC shall design and construct the roadway sections along the north side of the Butchertown Historic District using embankments or other designs recommended by KHPAT that support aesthetically pleasing noise abatement measures, lighting, and landscaping that maintain the context of the historic district as set forth in the HPP.
4. Edison House – KYTC shall provide funding for rehabilitation of the exterior of the Edison House provided its owners agree to provide a preservation easement to ensure long-term preservation of its exterior in accordance with Stipulation II.H. Plans shall be

submitted to the KYSHPO for approval as to conformance with the Secretary's Standards prior to implementation. During the development of detailed plans and in consultation with the Edison House owners and KYSHPO, KYTC will conduct a noise study to determine whether interior noise abatement measures are justified. Interior noise abatement will be considered in accordance with Stipulation II.E. if predicted noise levels exceed the interior noise abatement criteria.

5. Wesley House – KYTC will provide funding for the rehabilitation of the exterior of the Wesley House provided its owners agree to provide a preservation easement to ensure long term preservation of its exterior in accordance with Stipulation II.H. Plans shall be submitted to the KYSHPO for approval as to conformance with the Secretary's Standards prior to implementation. During the development of detailed plans and in consultation with the Wesley House owners and KYSHPO, KYTC will conduct a noise study to determine whether interior noise abatement measures are justified. Interior noise abatement will be considered in accordance with Stipulation II.E. if predicted noise levels exceed the interior noise abatement criteria.
6. St. Joseph's Church – During the development of detailed plans and in consultation with the Church and KYSHPO, KYTC will conduct a noise study to determine whether interior noise abatement measures are justified for the Church, Day Care Center, and School. Interior noise abatement will be considered in accordance with Stipulation II.E. if predicted noise levels exceed the interior noise abatement criteria.
7. Franklin Street Baptist Church – During the development of detailed plans and in consultation with the Church and KYSHPO, KYTC will conduct a noise study to determine whether interior noise abatement measures are justified for the Church. Interior noise abatement will be considered in accordance with Stipulation II.E. if predicted noise levels exceed the interior noise abatement criteria.
8. Marcus Lindsay Methodist Church - During the development of detailed plans and in consultation with the Church and KYSHPO, KYTC will conduct a noise study to determine whether interior noise abatement measures are justified for the Church. Interior noise abatement will be considered in accordance with Stipulation II.E. if predicted noise levels exceed the interior noise abatement criteria.
9. Grace Immanuel United Church of Christ - During the development of detailed plans and in consultation with the Church and KYSHPO, KYTC will conduct a noise study to determine whether interior noise abatement measures are justified for the Church. Noise abatement will be considered in accordance with

Stipulation II.E. if predicted noise levels exceed the interior noise abatement criteria.

10. Grocers Ice and Cold Storage Company (601 – 615 East Main Street) – KYTC shall, in consultation with the KYSHPO, make a reasonable effort during Project development to provide a plan that supports the adaptive reuse of this property. In the event such a plan cannot be developed, the KYTC will develop documentation for the property at a level agreed upon by the KYSHPO, KYTC, and FHWA and proceed to demolish the structure once the agreed upon documentation has been accepted.
11. Mellwood/Story Connection – KYTC will conduct a study of the Mellwood Avenue – Story Avenue Connector during the development of detailed plans in order to evaluate the elimination of this proposed connector and restoration of two-way traffic flow on Mellwood Avenue and Story Avenue. Results of the study will be provided to the Advisory Team for review and comment and reported in the Progress Reports provided for in Stipulation IX.
12. KYTC shall design and construct streetscape improvements within the entire historic district as set forth in Stipulation II.J, in accordance with provisions of the HPP and the Kentucky Heritage Council's streetscape design guidelines.
13. KYTC shall design and construct traffic calming measures on existing streets in the historic district with attention to the expansion of east downtown Louisville and Phase Two of the Waterfront Park with the concurrence of the KYSHPO and to the extent practicable and in a manner consistent with the HPP.
14. KYTC shall design and construct Project roadway lighting within the viewshed of the historic district as set forth in Stipulation II.D.
15. KYTC shall implement noise abatement measures wherever Project noise is expected to adversely affect the historic district as set forth in Stipulation II.E.
16. Prior to initiating construction activities in this section, KYTC will ensure that the construction contractor shall develop and implement a blasting/vibration plan for the Project to avoid damage to the District as set forth in Stipulation II.L

L. Phoenix Hill Historic District

1. KYTC shall develop an HPP for the Phoenix Hill Historic District as set forth in Stipulation II.F. The HPP shall include recommended measures for context sensitive design, noise abatement, streetscape improvements, gateway elements, and interpretive signage which shall be implemented as part of the Project to mitigate adverse effects to the historic district, as well as additional recommendations for measures to enhance the historic

district and include strategies for rehabilitation and reuse of the buildings and grounds that lie within the historic district. The HPP shall develop a thematic context to assist with future nominations in the region. The HPP shall be coordinated with the latest development plans available from the Metro Government that affect the historic district and East Downtown area.

2. KYTC shall design and construct Project roadway lighting as set forth in Stipulation II.D.
3. KYTC shall make a reasonable effort to work with the owner to relocate the Baer Fabrics Company to another historic property within the District or to a suitable facility within the Phoenix Hill neighborhood, as defined by the Metro Government. If the owner agrees to move his business to an historic property within the District or neighborhood, Project funds will be made available for its rehabilitation in accordance with Secretary's Standards and to suit the needs of its new function.
4. In consultation with the KYSHPO and the Metro Government, KYTC shall develop a treatment plan for rehabilitation of the Vermont American Buildings affected by the Project and to explore options for their re-use. The KYTC shall undertake the rehabilitation of the exterior of the building, if recommended in the treatment plan, as a part of the Project.
5. St. John's Church - During the development of detailed plans and in consultation with the Church and KYSHPO, KYTC will conduct a noise study to determine whether interior noise abatement measures are justified for the Church. Interior noise abatement will be considered, in accordance with Stipulation II.E, if the predicted noise levels exceed the interior noise abatement criteria.
6. Refuge in Kentucky Church - During the development of detailed plans and in consultation with the Church and KYSHPO, KYTC will conduct a noise study to determine whether interior noise abatement measures are justified for the Church, Day Care Center, and School. Interior noise abatement will be considered, in accordance with Stipulation II.E, if the predicted noise levels exceed the interior noise abatement criteria. .
7. KYTC shall place interpretative signage as set forth in Stipulation II.K within the historic district to explain its historic significance.
8. KYTC shall include streetscape improvements along Main Street and Market Street from Floyd Street to Clay Street and in the area under the I-65 Bridge as set forth in Stipulation II.J and in accordance with provisions of the HPP and the Kentucky Heritage Council's streetscape design guidelines.
9. Prior to initiating construction activities in this section, KYTC will ensure that the construction contractor shall develop and implement a blasting/vibration plan for the Project to avoid damage to the District as set forth in Stipulation II.L

M. Country Estates Historic District/River Road Corridor

1. KYTC shall develop an HPP as set forth in Stipulation II.F which will identify the context and provide recommended measures for context sensitive design, noise abatement, roadway lighting, blasting and vibration plans, and interpretive signage which shall be implemented as part of the Project to mitigate adverse effects to the historic district and individual properties within the vicinity of the construction of the A-15 Corridor. The HPP shall specifically consider and develop recommendations for the following historic properties:
 - a. Country Estates of River Road Historic District, including individually listed National Register properties within the District,
 - b. James T. Taylor/James W. Chandler House
 - c. Merriwether House,
 - d. Upper River Road Bridge over Harrods Creek,
 - e. Harrods Creek Village Historic District,
 - f. Schildnecht House,
 - g. Determan House,
 - h. Allison-Barrickman House,
 - i. St. Francis in the Fields Church,
 - j. Belleview, and
 - k. Rosewell
2. KYTC shall, in consultation with the KYSHPO and the KHPAT, design and construct the proposed roadways, bridges, and tunnels from I-71 to the Ohio River as set forth in Stipulation II, taking into consideration the cultural landscapes that are an important contributing element to the historic district. Special attention will be given to viewsheds that are significantly affected and will focus on the development and implementation of creative strategies for mitigating those impacts. This may include landscaping of public rights of way and on private land should the property owner's consent be given.
3. KYTC shall design and construct Project roadway lighting within the viewshed of the historic district as set forth in Stipulation II.D.
4. KYTC shall implement noise abatement measures where Project noise is expected to affect the listed and eligible properties as set forth in Stipulation III.M.1.a – k in accordance with Stipulations II.E.
5. Prior to initiating construction activities, KYTC shall ensure that construction contractors shall develop and implement blasting/vibration plans for this portion of the Project to avoid damage to the listed and eligible properties as set forth in

Stipulation III.M.1.a – k, including the Strater House, in accordance with Stipulation II.L.

6. KYTC shall define a “no-work zone” within the National Register boundaries of the listed and eligible properties as set forth in Stipulation III.M.1.a – k in accordance with Stipulation II.N.

N. Drumanard

1. The Project through this property will be contained in a tunnel so as to limit adverse effects to the historic property.
2. Prior to initiation of construction activities on the A15 Corridor, FHWA shall make every effort to acquire or otherwise establish an historic preservation easement for the entire Drumanard historic property as set forth in Stipulation II.H. The easement shall be held by the KYSHPO.
3. If FHWA cannot acquire an historic preservation easement, then FHWA will acquire the Drumanard property, place an historic preservation easement on the property, and transfer the property to KYTC who shall seek to sell the property at fair market value to a preservation organization or other party acceptable to the Bi-State Historic Consultation Team or donate the property to a local government. The current owner will have first right of refusal.
4. Prior to initiating construction activities, KYTC will ensure that the construction contractor shall develop and implement a blasting/vibration plan for the Project to avoid damage to the historic structures within the property as set forth in Stipulation II.L. During construction activities on and around the property, KYTC shall monitor the historic buildings to preclude impacts due to blasting or vibration.

O. Allison-Barrickman House

1. KYTC shall make reasonable efforts to acquire a preservation easement on the tract of land within the National Register boundary of the Allison-Barrickman house and an easement on the property bounded by US 42, KY 841, the Allison-Barrickman property, and Wolf Pen Branch Road, as set forth in Stipulation II.H.
2. KYTC shall implement noise abatement measures as set forth in Stipulation II.E.

3. KYTC shall define a “no-work zone” within the National Register boundary of the property as set forth in Stipulation II.N.
4. Prior to initiating construction activities, KYTC shall ensure that construction contractors shall develop blasting/vibration plans for this portion of the Project to avoid damage to the Allison-Barrickman house as set forth in Stipulation II.L.

P. Rosewell

1. Prior to the initiation of construction activities on the A15 Corridor, KYTC shall develop and implement a Treatment Plan in consultation with the KYSHPO, FHWA, and KHPAT to minimize damage to the historic property.
2. KYTC shall make every reasonable effort to acquire the Rosewell property at the fair market value and from a willing seller.
3. Immediately following its acquisition, KYTC shall place a preservation easement on the property as set forth in Stipulation II.H and sell the property to a local historic preservation organization or other party acceptable to the Bi-State Historic Consultation Team or donate the property to a local government. KYSHPO shall hold the easement. If sold, the current owner will have first right of refusal.
4. KYTC shall design and construct roadway lighting as set forth in Stipulation II.D.
5. KYTC shall implement noise mitigation measures as set forth in Stipulation II.E.
6. Prior to initiating construction activities, KYTC shall ensure that the construction contractors shall develop blasting/vibration plans for this portion of the Project to minimize damage to the house as set forth in Stipulation II.L.
7. KYTC shall define a “no-work zone” within the National Register boundary of the property as set forth in Stipulation II.N.

Q. Belleview

1. KYTC shall design the Ohio River Bridge and embankment adjacent to Belleview as set forth in Stipulation II taking into account the cultural landscape associated with this historic property. Context sensitive landscaping and other visual treatments, in accordance with Stipulation II.C, will

- be considered on or adjacent to the national register boundary, with owner consent and maintenance.
- 2. KYTC shall design and construct roadway lighting within the viewshed of Belleview as set forth in Stipulation II.D.
- 3. KYTC shall implement noise mitigation measures as set forth in Stipulation II.E.
- 4. Prior to initiating construction activities, KYTC shall ensure that construction contractors develop blasting/vibration plans for this portion of the Project to avoid damage to the historic buildings as set forth in Stipulation II.L.
- 5. KYTC shall define “no-work zones” within the National Register boundary of the historic property as set forth in Section II.N.

IV. ARCHAEOLOGICAL RESOURCES

A. Implementation Standards

- 1. In implementing Stipulation IV, FHWA may withhold or limit public disclosure of information about historic properties in accordance with Section 304 of the National Historic Preservation Act and 36 CFR §800.6(a)(5) and 36 CFR §800.11 (c).
- 2. FHWA shall ensure that consultation with Indian Tribes is conducted in a manner which is consistent with 36 CFR §§ 800.2 (c)(2)(ii)(A), (B), and (C). Using the phrase “Indian Tribes when appropriate” means to consult with an Indian Tribe that might attach religious and cultural significance to an historic property.
- 3. In order to maximize the opportunity to avoid adverse effects, FHWA will make every effort to complete identification and evaluation of archeological resources at the earliest possible time in Project design.
- 4. In implementing Stipulation IV, FHWA may consult with the parties listed in Attachment F and others identified in accordance with 36 CFR §800.2(c)(2)(ii) and 36 CFR §800.2(c)(5).
- 5. FHWA, in consultation with the SHPOs, Indian Tribes when appropriate, and other parties deemed appropriate by FHWA, will take reasonable measures to avoid disinterment and disturbance to human remains and grave goods of religious and cultural significance to Indian Tribes, including modification of the Project.

B. Identification

1. Before letting any type of Project construction in the APE or selecting sites for ancillary activities associated with the Project, FHWA shall complete the identification and evaluation of archeological resources for inclusion in the NRHP in accordance with applicable Federal and state standards and guidelines listed in Stipulation VIII.B.
2. FHWA shall examine all locations where ground-disturbing activities are proposed or where they may occur within temporary easements and permanent right of way. These locations may include, but are not limited to, roadway cuts and fills, bridge foundations, tunnel shafts, drainage excavations, waste areas, borrow sites, dredge disposal sites, construction staging areas, storage areas, and wetland and other mitigation sites.
3. In ensuring that any human remains and grave goods identified are treated in a sensitive, respectful and careful manner, FHWA shall be guided by the ACHP's Policy Statement Regarding Treatment of Human Remains and Grave Goods (September 27, 1988), and where appropriate other guidelines, such as the Eastern Band of Cherokee Indians (EBCI) Treatment Guidelines for Human Remains and Funerary Objects, and the following conditions:
 - a. FHWA will make every reasonable effort to avoid disinterment or disturbance of human remains and grave goods during identification and evaluation.
 - b. FHWA will make a reasonable and good faith effort to determine the location, cultural/temporal period, and cultural affiliation of human remains and/or grave goods without any removal or destructive analysis of these remains. If, in consultation with the SHPOs, Indian Tribes when appropriate, and other parties deemed appropriate by FHWA, FHWA determines that this information cannot be obtained without disturbance to the human remains and/or grave goods, FHWA may remove the remains for study.
 - c. FHWA will ensure that human remains and/or grave goods are not photographed or subject to invasive study during the identification and evaluation phases.
 - d. In the event that human remains and/or grave goods that may be of religious or cultural significance to Indian Tribes are identified, FHWA shall provide written notification and documentation to the appropriate SHPO, Indian Tribes, and other parties deemed appropriate by FHWA who have requested such notification within 48 hours following the identification, and shall consult with them to determine a specific protocol for addressing the possible analysis, interim curation, and, if necessary, the reburial of the remains.

4. A Plan(s) for the identification and evaluation of archeological resources will be developed by FHWA in consultation with the SHPOs, Indian Tribes when appropriate, and other parties deemed appropriate by FHWA. Preparation of the Plan(s) for identification and evaluation will be guided by each state's standards for conducting fieldwork and reporting and the archeological component of each state's Historic Preservation Plan.
 - a. FHWA shall provide the SHPOs, Indian Tribes when appropriate, and other parties deemed appropriate by FHWA, thirty (30) calendar days from the day of confirmed receipt, to review and provide comments on the Plan(s). The final Plan(s) shall address comments received.
 - b. If no response is received within 30 days of confirmed receipt, FHWA may proceed with its Plan(s).
 - c. Any dispute regarding the Plan(s) shall be resolved in accordance with Stipulation XIII.
5. FHWA shall prepare and distribute final Identification and Evaluation reports in accordance with Stipulation IV.F.

C. Evaluation

1. The studies completed pursuant to Stipulation IV.B shall demonstrate a level of effort consistent with 36 CFR § 800.4(b)(1) and provide FHWA with the information to determine which archeological resources are eligible for inclusion in the NRHP in accordance with 36 CFR § 800.4(c). The FHWA shall acknowledge and seek the special expertise of Indian Tribes in assessing the eligibility of historic properties that may possess religious and cultural significance to them.
2. If the FHWA determines any of the National Register criteria are met and the appropriate SHPO agrees, the archeological resource shall be considered eligible for the National Register and treated in accordance with the Stipulations IV.D and IV.E.
3. If FHWA and the appropriate SHPO do not agree on NRHP eligibility, the FHWA shall seek a formal determination of eligibility from the Keeper of the NRHP.
4. If FHWA and the SHPO agree that the archeological resource is not NRHP eligible, then no further action is necessary under the terms of this MOA unless there is a written objection submitted in accordance with Stipulations IV.C.5 and IV.C.6.
5. FHWA shall notify the Indian Tribes and other parties whom so request of its findings regarding eligibility.
6. If a party who has been so notified objects in writing within 15 days to FHWA's determination of eligibility, even though FHWA and the appropriate SHPO may agree, FHWA shall reconsider its

determination, consult with the appropriate SHPO, Indian Tribes, and the objecting party in accordance with 36 CFR § 800.4 (c)(2), and review any evidence brought forward prior to making a decision.

D. Assessment of Effects

1. In consultation with the SHPOs, Indian Tribes when appropriate, and other parties deemed appropriate by FHWA, the FHWA shall determine if the Project will adversely affect archeological resources determined eligible for inclusion in the NRHP pursuant to 36 CFR § 800.5, including those archeological sites identified in Attachment D.
2. If, in consultation with the SHPO, Indian Tribes when appropriate, and other parties deemed appropriate by FHWA, FHWA determines the Project may adversely affect eligible archeological resources; the FHWA shall make reasonable efforts to avoid or minimize the adverse effect. If, in consultation with the SHPO, Indian Tribes when appropriate, and other parties deemed appropriate by FHWA, FHWA determines it is not possible to avoid disturbance, then FHWA shall treat the archeological resource in accordance with Stipulation IV.E.
3. Any dispute regarding the determination of effects on eligible archaeological resources shall be resolved in accordance with Stipulation XIII.

E. Treatment

1. If FHWA, in consultation with the SHPOs, Indian Tribes when appropriate, and other parties deemed appropriate by FHWA, determines that the adverse effect cannot be avoided or minimized, then the FHWA shall develop and implement a Treatment Plan(s), as part of the above consultation, to mitigate the adverse effects to an archeological resource on a site-by-site basis. The implementation of the Treatment Plan must be completed for each site prior to the initiation of any Project construction activities within a segment that could affect that site. The Treatment Plan(s) shall specify at a minimum:
 - a. Description of the historic properties or portions of historic properties where treatment will be carried out,

- b. Description of any historic property or portion thereof that will be adversely affected without treatment for such action,
 - c. Methods for site preservation/protection.,
 - d. Research questions to be addressed through data recovery with a clear and explicit discussion of their scientific justification and an explanation of their relevance and importance, which is guided by the archeological component of the respective state's Historic Preservation Plan.
 - e. Field methods to be used with an explanation of their relevance and applicability to the scientific research questions,
 - f. Methods to be used in data analysis, data management and dissemination of data, including a schedule,
 - g. Plans for the treatment of human remains and grave goods developed in accordance with Stipulation IV.E.2,
 - h. Plans for curation of recovered materials and records,
 - i. Provisions for reburial of human remains and grave goods where appropriate, including timeframes for analysis and reburial,
 - j. Plans for public education and interpretation,
 - k. Plans for keeping the SHPOs, Indian Tribes, and other appropriate parties informed of work progress and findings, and
 - l. A schedule for the submission of reports and other deliverables.
2. Plans addressing the treatment of human remains and grave goods, as provided for in Stipulation IV.E.1.g, shall be guided by the ACHP's Policy Statement Regarding Treatment of Human Remains and Grave Goods (September 27, 1988), and where appropriate other guidelines, such as the Eastern Band of Cherokee Indians (EBCI) Treatment Guidelines for Human Remains and Funerary Objects. In determining how to treat human remains and grave goods, FHWA shall also be guided by the following considerations:
- a. Burials that will not be threatened or disturbed by the Project shall not be disinterred or disturbed through scientific study.
 - b. If disturbance cannot be avoided, FHWA will determine if scientific study of the human remains, grave goods and the burial matrix will be conducted by carefully weighing the contribution of scientific study against the religious and cultural significance ascribed to the remains on a site-by-site basis in consultation with the SHPOs, Indian Tribes when appropriate, and other parties determined appropriate

- by FHWA. FHWA's decision to conduct scientific study of human remains, grave goods, and burial matrix must be supported by an explicit set of definitive and justified research questions on a case-by-case basis.
- c. Human remains and funerary objects of religious and cultural significance to Indian Tribe(s) may be photographed only when FHWA in consultation with the SHPOs, Indian Tribes when appropriate, and other parties deemed to be appropriate by FHWA, determines that it is called for and justified in a site-specific treatment plan to support scientific study. Detailed drawings and sketches may be developed.
 - d. Human remains and/or grave goods, which have been disinterred, should be reburied as soon as possible, in a timeframe, location, and manner determined appropriate by FHWA, on a case-by-case basis in consultation with the SHPOs, Indian Tribes when appropriate, and other parties deemed appropriate by FHWA. The dates, times, and location of disinterment and reburial should be considered sensitive and confidential and will be subject to restrictions under Stipulation IV.A.1.
3. Human remains and grave goods shall be made available for reburial to the appropriate party or responsible official within thirty (30) days of any determination made pursuant to this stipulation to rebury human remains and grave goods or the date for such reburial specified in any time frame agreed upon under this stipulation.
 4. FHWA shall provide ACHP, the SHPOs, Indian Tribes who have expressed interest in the site, and other parties deemed appropriate by FHWA, thirty (30) calendar days to review and provide comments on the Treatment Plan(s) developed in accordance with Stipulation IV.E. FHWA shall ensure that the final Treatment Plan(s) takes into consideration comments received. FHWA may provide other consulting parties, as appropriate, an opportunity to review and comment on the proposed Treatment Plan(s). If no response is received within thirty (30) days of confirmed receipt, FHWA may proceed with the Treatment Plan(s).
 5. Any dispute regarding the Treatment Plan(s) shall be resolved in accordance with Stipulation XIII.
 6. After implementing the above stipulations for treatment, FHWA may elect to monitor construction activities in selected portions of the right of way. Monitoring shall be conducted by an archeologist meeting the qualification standards in Stipulation IV.F.1. In deciding whether to conduct monitoring, FHWA shall consider the likelihood of identifying additional archeological resources and any recommendations provided by the SHPOs, Indian Tribes, and

other participating parties. Any archeological resources identified during construction monitoring will be treated in accordance with Stipulation V.

F. Qualifications and Reporting

1. In consultation with the SHPOs, FHWA shall ensure that all archeological work carried out pursuant to this MOA is performed by, or under the direct supervision of, a person or persons meeting *Secretary of the Interior's Professional Qualification Standards* in archeology and who has supervisory experience in the prehistoric and historic archeology of the lower Ohio Valley.
2. FHWA shall ensure the results of all archeological studies performed under the terms of this MOA are presented in professionally written reports meeting the standards for fieldwork, laboratory work, analysis, and report preparation that have been established by the SHPOs for each state.
3. FHWA, INDOT, KYTC, SHPOs, contractors, consultants, and Indian Tribes shall ensure that sensitive information regarding the nature and location of human remains and grave goods, and the location, character, and ownership of archeological sites is kept confidential from the public, in accordance with Section 304 of the NHPA and 36 CFR § 800.11(c).
4. The ACHP, SHPOs, Indian Tribes, and other parties deemed appropriate by FHWA shall have thirty (30) days after confirmed receipt to review and comment on the written reports. The FHWA shall address all comments received in the final written reports.
5. Any dispute regarding the report(s) shall be resolved in accordance with Stipulation XIII.

G. Distribution of Final Reports

1. Upon completion of work, the FHWA shall provide copies of final reports to the respective SHPOs, STAs, and Indian Tribes when appropriate.
2. The FHWA, in consultation with the appropriate SHPO, shall prepare sufficient copies of final reports completed pursuant to this MOA for dissemination to the public libraries, educational institutions, and other repositories in Jefferson and Clark Counties and Indian Tribes as appropriate.
3. FHWA will ensure that all final archaeological reports for public dissemination do not contain sensitive information regarding the nature and location of human remains and grave goods, and the

location, character, and ownership of all archaeological sites as provided for in Section 304 of the NHPA and 36 CFR §800.11(c).

V. UNANTICIPATED DISCOVERIES

- A. If, during the implementation of the Project, a previously unidentified property is discovered or a previously identified historic property is affected in an unanticipated manner, KYTC or INDOT, as appropriate, shall ensure that all work within a minimum of 50 feet around the area of the discovery shall cease until such time as a treatment plan can be developed and implemented as set forth below.
- B. KYTC or INDOT, as appropriate, shall require the contractor to take all reasonable measures to avoid harm to the property until the FHWA concludes consultation with appropriate SHPO, Indian Tribes, and other parties deemed appropriate by FHWA.
- C. Upon being notified of the discovery, the FHWA shall contact the appropriate SHPO, Indian Tribes, and other parties determined to have an interest within 48 hours and provide written details of the discovery.
- D. Within 48 hours of the discovery, or at the very earliest opportunity thereafter, INDOT or KYTC shall conduct an on-site evaluation of the discovery to consider eligibility, effects, and possible treatment measures. The FHWA, SHPOs, Indian Tribes, and other consulting parties deemed appropriate by FHWA may participate in the on-site evaluation and shall be notified in advance of the location, date, and time.
- E. If, based on the on-site evaluation, FHWA determines that a historic property is being adversely affected, then the parties shall consult to determine an appropriate Treatment Plan(s). If archeological resources are discovered, FHWA will develop a Treatment Plan as set forth in Stipulation IV.E. The Treatment Plan will be submitted to the parties for review and comment within seven days of receipt of the proposed plan. FHWA will take comments received into account in developing and implementing the final plan.
- F. If FHWA, SHPO, and Indian Tribes agree the site is not eligible for the NRHP, then ground-disturbing work may proceed.
- G. If the parties cannot reach agreement regarding eligibility, effects, or treatment, they shall invoke the provisions for dispute resolution at Stipulation XIII.

VI. ADDITIONAL HISTORIC PROPERTIES AND EFFECTS

- A. Before the approval of sites for staging, wetland mitigation, borrow or waste, dredge disposal, or other construction activities associated with the Project are approved, INDOT or KYTC shall consult with the FHWA, SHPOs, Indian Tribes, and other parties deemed appropriate by FHWA, in accordance with 36 CFR §§ 800.3– 800.7 to determine if historic properties in addition to those identified in Attachment D and through Stipulation IV will be affected by the Project.
- B. If FHWA determines that there is any adverse effect to an historic property assessed in accordance with Stipulation VI.A, then FHWA shall consult with the INDOT and/or KYTC, the respective SHPO, Indian Tribes, and other parties deemed appropriate by FHWA to seek ways to minimize or mitigate the adverse effects.
- C. If the parties can agree on measures to mitigate the adverse effect, FHWA will ensure that those measures are implemented. If the parties cannot agree, the dispute will be resolved in accordance with Stipulation XIII.

VII. EXCESS RIGHT OF WAY

Should the Project result in excess right-of-way to be disposed, such as is anticipated for the Kennedy Interchange, the FHWA shall consult with the appropriate SHPO to determine whether the disposal or sale would have an adverse effect on historic properties. If consultation indicates the potential for historic resources to be adversely affected, FHWA shall consult pursuant to 36 CFR §§ 800.3 – 800.7 to develop and implement the treatment of the affected resources and disposition of the property.

VIII. PERFORMANCE STANDARDS

- A. Professional Qualifications - The FHWA shall ensure that all cultural resources work carried out pursuant to this MOA shall be carried out by or under the direct supervision of individuals that meet the *Secretary of the Interior's Professional Qualification Standards*.
- B. Standards and Guidelines - The FHWA, shall also ensure that all historic preservation resource work carried out pursuant to this MOA shall be guided by the most recent version of the following standards and guidelines, as applicable:

- 1. The Secretary of Interior: Standards and Guidelines for Archeology and Historic Preservation.
- 2. Advisory Council on Historic Preservation: Treatment of Archeological Properties: A Handbook.

3. Indiana Guidelines: Division of Historic Preservation and Archaeological Guidelines; most recent version of the Indiana Archaeological Guidelines updating the Guidebook for Indiana Historic Sites.
4. Kentucky Guidelines: Specifications for Conducting Fieldwork and Preparing Cultural Resource Assessment Reports; most recent version of the Kentucky State Historic Preservation Office.

IX. PROGRESS REPORTS

- A. Progress reports detailing implementation of the measures stipulated within this MOA and providing advanced notice of milestones, such as Plans, Specifications, and Estimates (PS&E) approval, scheduled letting dates, and initiation of construction activities, shall be submitted by the Bi-State Management Team to the signatories, concurring parties, and HPAT members every six (6) months, until all phases of the Project are complete.
- B. The first progress report shall be distributed six (6) months following execution of this MOA.
- C. The progress report shall identify the status of activities for each stipulation outlined in this MOA and of associated documents and products, such as HPPs, treatment plans, late discoveries, and acquisition and preservation of historic properties.

X. PROJECT MODIFICATION

If the Project, as described in Attachment A, is significantly modified, such that additional effects to historic properties not previously considered may result in adverse effects, or if actions are taken by a property's owners in the interim unrelated to the Project which change the NRHP status of previously identified historic properties affected by the Project, then FHWA will consult with the signatories to determine if the MOA should be amended. If the signatories agree that the MOA should be amended, they will consult in accordance with Stipulation XI to amend the MOA.

XI. AMENDMENT

- A. Any signatory to this MOA may request that it be amended, whereupon the signatories of this MOA shall consult to consider such an amendment.
- B. Any resulting amendments shall be developed and executed among the signatories in the same manner as the original MOA.
- C. Any amendment to this agreement will go into effect only upon written agreement of all signatories.

XII. FAILURE TO COMPLY/TERMINATION

If any signatory determines that the terms of this MOA cannot be or are not being carried out, then the signatories shall consult to seek amendment of the MOA. If the MOA is not amended, any signatory may terminate it by providing thirty (30) calendar days written notice to the other parties. FHWA shall then either execute a new agreement with the signatories pursuant to 36 CFR § 800.6(c)(1) or request and respond to the comments of the Council under 36 CFR § 800.7.

XIII. DISPUTE RESOLUTION

- A. Should any signatory or concurring party object in writing within thirty (30) days of the receipt of any plans or implementation of any actions proposed pursuant to this MOA, FHWA shall consult with the objecting party and the appropriate SHPO to try to resolve the objection. If the FHWA and the SHPO determine that the objection cannot be resolved, FHWA shall forward all documentation relevant to the objection to the ACHP. Within fifteen (15) days after receipt of all pertinent documentation, the ACHP shall either:
 - 1. Provide the FHWA with a recommendation, which the FHWA shall take into account in reaching a final decision regarding the dispute; or
 - 2. Notify the FHWA that it shall comment pursuant to 36 CFR § 800.7(c) and proceed to comment within the following 30 days.
- B. Any recommendations provided by the ACHP in response to a request made pursuant to Stipulation XIII.A.1 shall be taken into account by FHWA with reference only to the subject of the dispute.
- C. Any comment provided by the ACHP in response to a request made pursuant to Stipulation XIII.A.2 shall be taken into account and responded

to by the FHWA in accordance with 36 CFR §800.7(c)(4) with reference only to the subject of the dispute.

- D. FHWA's responsibility to carry out all actions under this MOA that are not subject to the dispute shall remain unchanged.

XIV. DURATION

This MOA shall remain in effect for twenty years following its execution. If the Project has not been completed and the terms of the MOA implemented within this time, the signatories shall consult to reconsider the terms of the MOA and determine whether extension, amendment, or termination is in order.

EXECUTION and implementation of this MOA evidence that FHWA has taken into account the effects of the Project on historic properties and has afforded the ACHP an opportunity to comment on those effects.

SIGNATORIES:

FEDERAL HIGHWAY ADMINISTRATION

By:  Date: 3/26/03

ADVISORY COUNCIL ON HISTORIC PRESERVATION

By: John M. Fowler Date: 4/1/03

INDIANA STATE HISTORIC PRESERVATION OFFICER

By: John R. Goss Date: 3/27/03

KENTUCKY STATE HISTORIC PRESERVATION OFFICER

By:  Date: 3-26-03

INVITED SIGNATORIES:

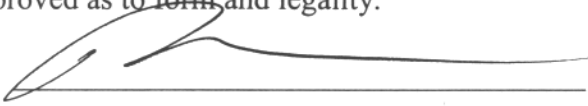
INDIANA DEPARTMENT OF TRANSPORTATION

By: T. Byrd Date: 3/27/03

KENTUCKY TRANSPORTATION CABINET

By: James C. Gaddy III Date: 3.26.03

Approved as to form and legality.

By:  Date: 3-26-03

CONCURRING PARTY:

[Insert Name]

By: _____ Date: _____

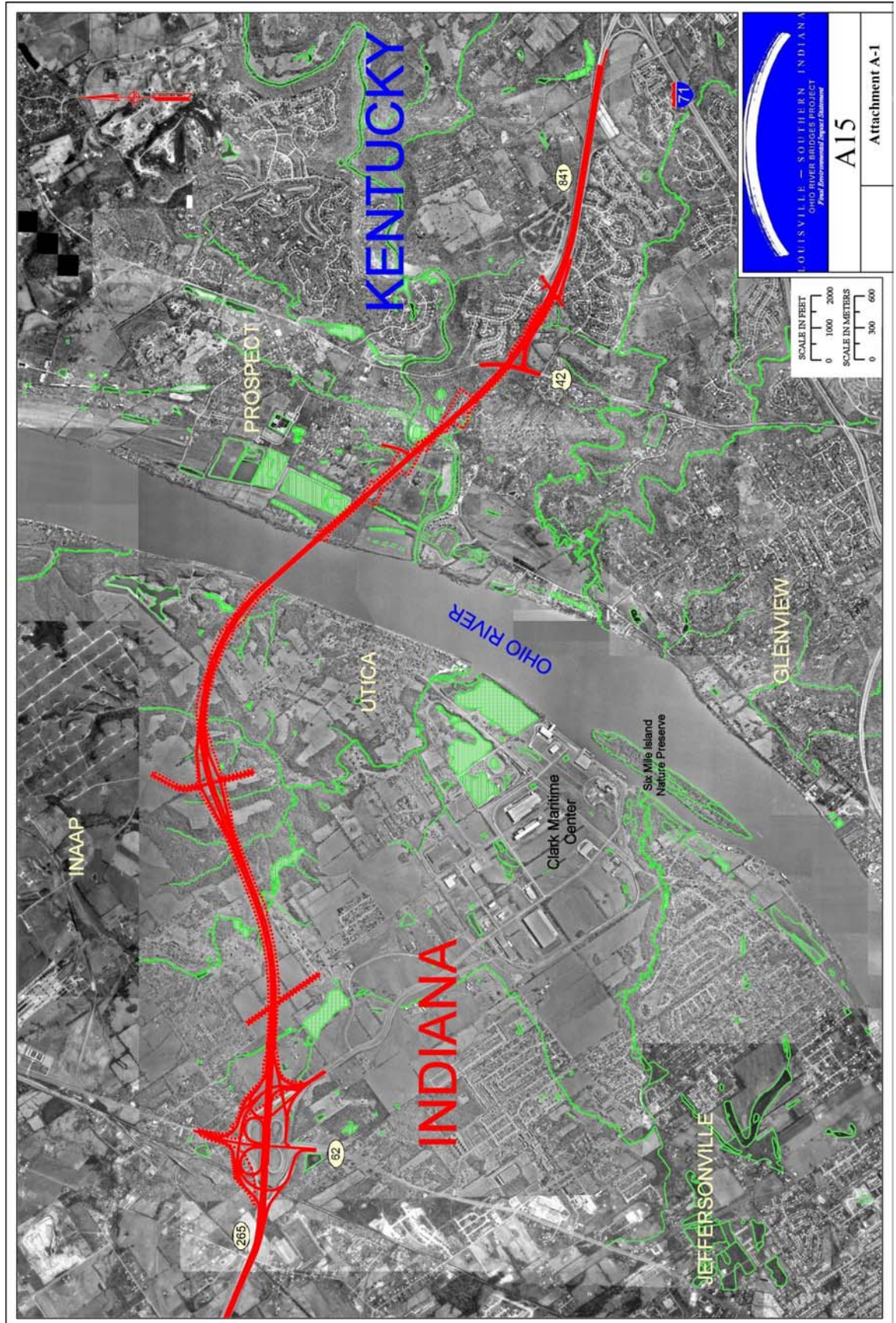
[INDIVIDUAL PAGE PER CONCURRING PARTY TO BE INSERTED INTO
AGREEMENT WHEN SIGNED.]

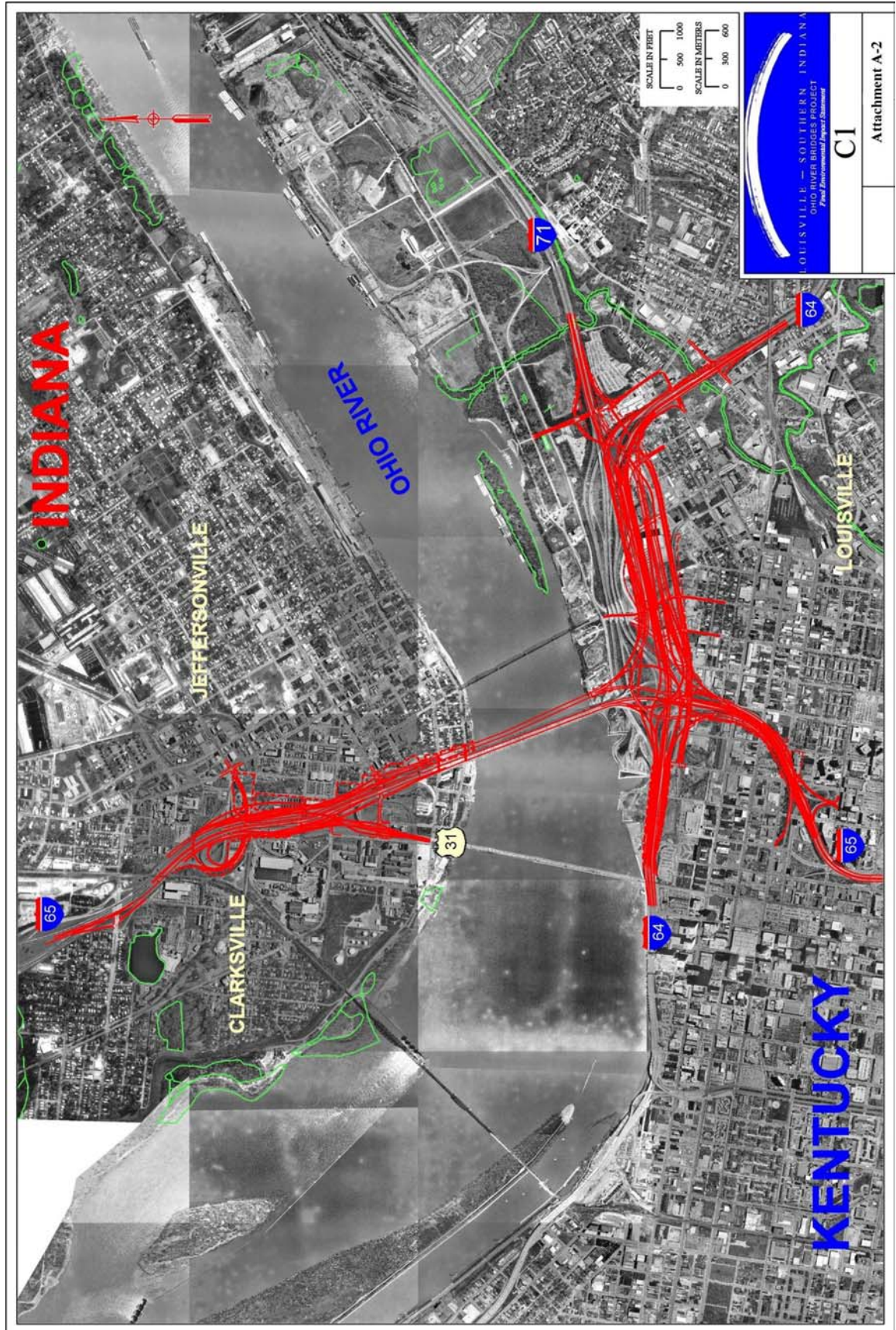
Attachment A

Project Description

The Louisville – Southern Indiana Ohio River Bridges Project consists of two new bridges over the Ohio River using Alignment C1 in the downtown portion of the Project and Alignment A15 in the eastern portion of the Project, reconstruction of the Kennedy Interchange (Spaghetti Junction) south of its present location, and other improvements and enhancements within the project corridor including:

- I-71 – Frankfort Avenue Interchange,
- Extension of Witherspoon Drive from Preston Street to Frankfort Avenue,
- Partial Interchange on A15 at US 42,
- Bikeway/pedestrian facilities on the downstream side of the A15 bridge connecting between River Road in Kentucky and Salem Road in Indiana and on the upstream side of C1,
- Full Interchange on A15 at Salem Road in Indiana, and
- Reconstruction of the Indiana 265 – Indiana 62 Interchange to include A15.





Attachment B

List of Supporting Technical Reports

A Cultural Resource Overview for the Ohio River Bridges at Louisville, Jefferson County, Kentucky by H. Powell and Co., Inc. – January 1999,

Louisville/Southern Indiana Ohio River Bridges Project – Documentary Research of Historical Resources – Environmental Impacts Statement/Phase I by The Westerly Group, Inc. – Revised May 1999,

Cultural Resources Survey for the Louisville – Southern Indiana Ohio River Bridges Project by H. Powell and Co., Inc. – July 2000,

Historical and Cultural Survey – Environmental Impact Statement Preparation – Louisville/Southern Indiana Ohio River Bridges Project – Indiana Downtown and East End Area of Potential Effect by The Westerly Group, Inc. – November 2000,

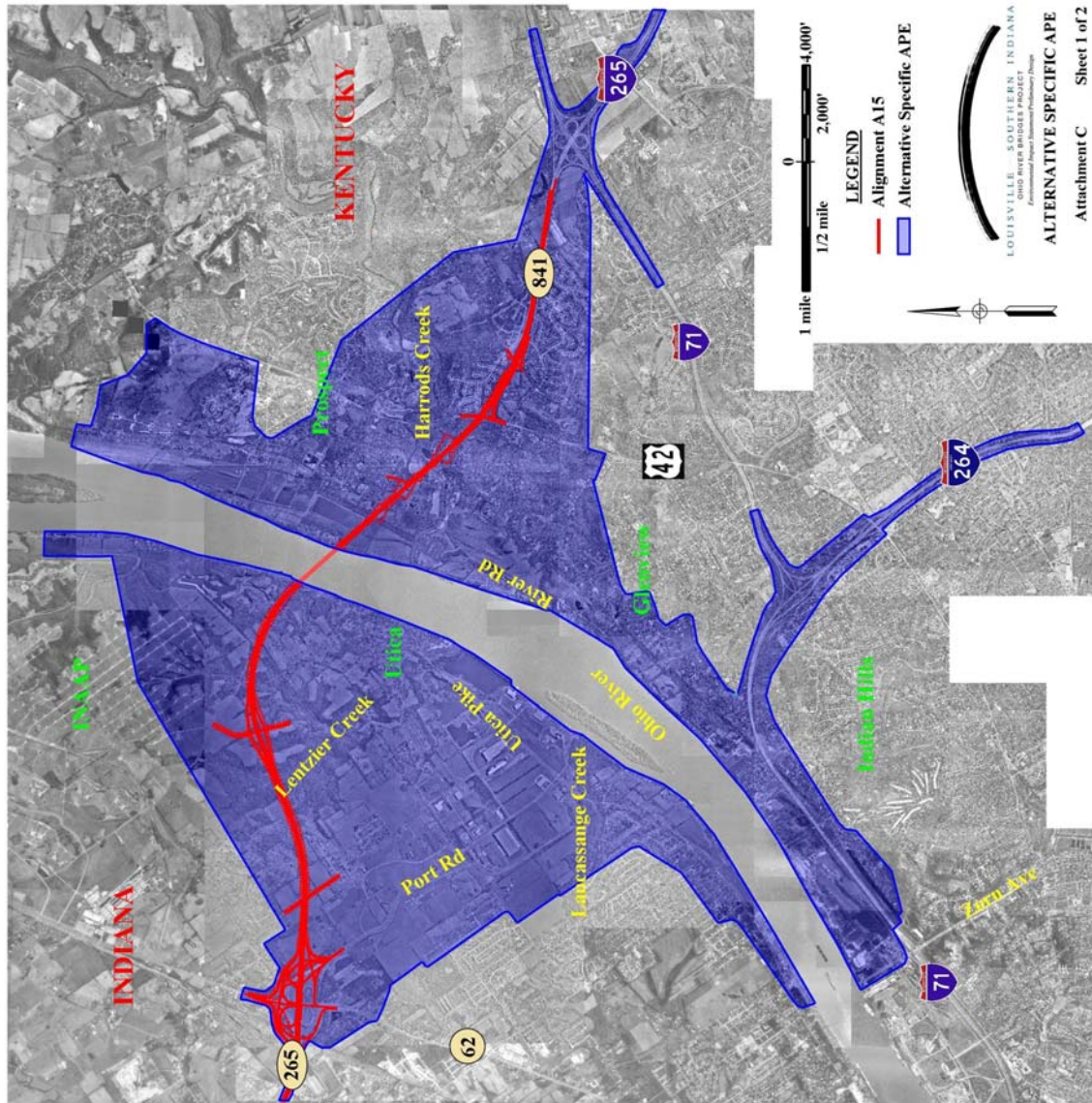
Louisville/Southern Indiana Ohio River Bridges Project – Cultural Resource Reconnaissance and Analysis – Phase II – Indiana Historic Resources – Proposed Alternative Alignments in the East End and Downtown Jeffersonville Areas by The Westerly Group, Inc. – Revised August 2001,

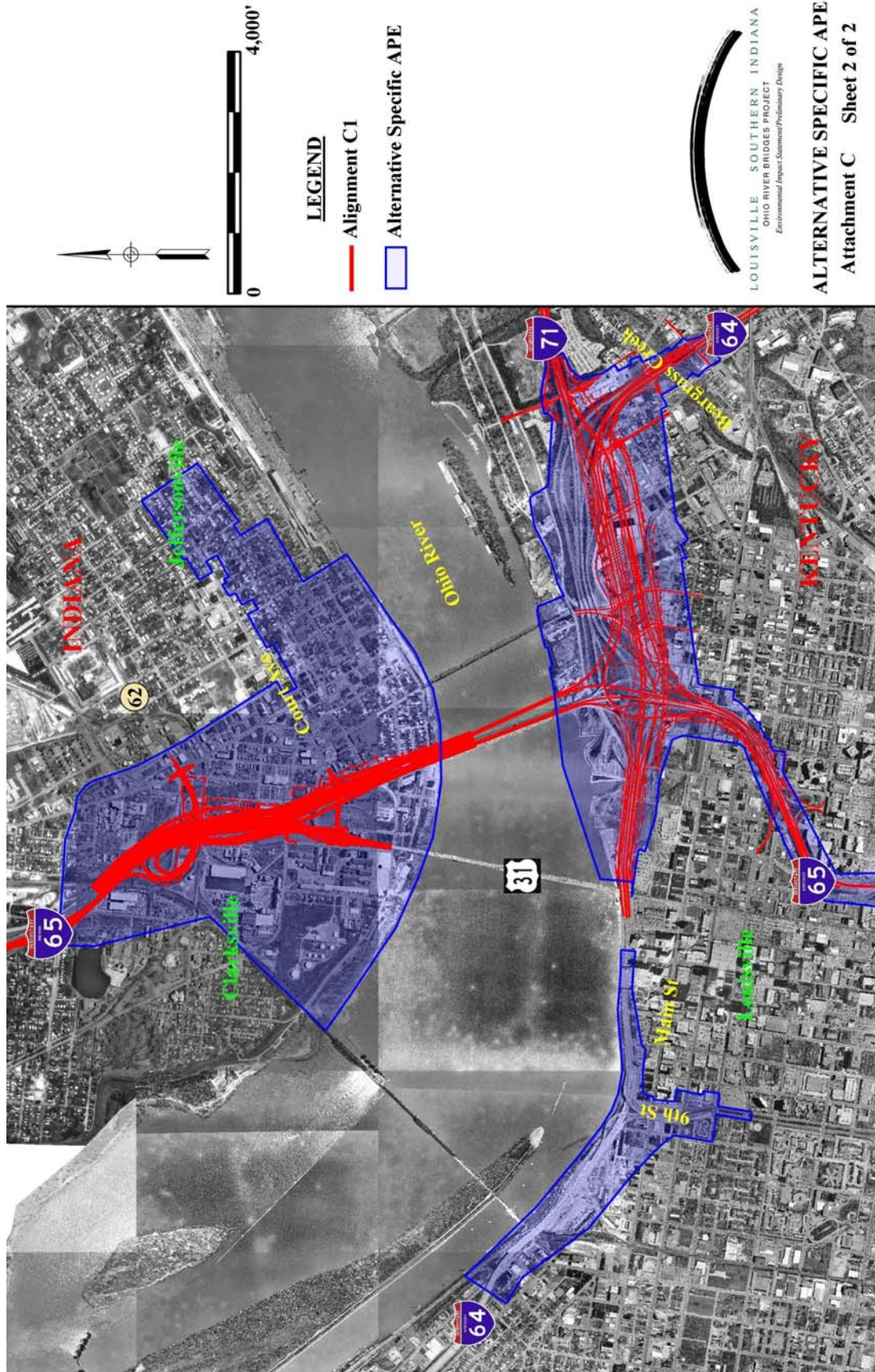
Addendum Expanded APE – Kentucky Cultural Historic Sites by H. Powell and Co., Inc. – February 2002,

Addendum to Cultural Resources Reconnaissance and Analysis – Phase II – Indiana Historic Resources – Louisville/Southern Indiana Ohio River Bridges Project by The Westerly Group, Inc. – February 15, 2002,

Section 106 – Final Determination of Eligibility – FHWA – June 2002,

Indiana – Kentucky – Assessment of Effects (3 volumes) – FWHA – May 2002, Revised July 2002, August 2002 and March 2003.





Attachment D

Historic Properties Determined to be Adversely Affected

Indiana Portion of the Project:

Train Depot – Adverse effect determined for visual and vibration impacts associated with the Alternative C1 portion of the Project;

Colgate-Palmolive Historic District – Adverse effect determined for visual and noise impacts associated with the Alternative C1 portion of the Project;

Ohio Falls Car and Locomotive Company Historic District – Adverse effect determined for visual, noise and vibration impacts associated with the Alternative C1 portion of the Project;

George Rogers Clark Memorial Bridge – Adverse effect determined for encroachment, visual, vibration, and construction impacts associated with the Alternative C1 portion of the Project;

Old Jeffersonville Historic District – Adverse effect determined for encroachment, visual, noise, and vibration impacts associated with the Alternative C1 portion of the Project;

INAAP Igloo Storage Historic District – Adverse effect determined for vibration impacts associated with the Alternative A15 portion of the Project;

Lentz Cemetery – Adverse effect determined for noise and vibration impacts associated with the Alternative A15 portion of the Project;

Lime Kilns within the Utica Lime Industry Multiple Property Listing (Lime Kilns 48002, 48003, and 48004), including Archaeological Site IE-AR-CL-561 associated with two of the lime kilns – Adverse effect determined for vibration impacts associated with the Alternative A15 portion of the Project;

Swartz Farm Rural Agricultural Historic District – Adverse effect determined for encroachment, visual, noise, vibration and construction impacts associated with the Alternative A15 portion of the Project; and

Archaeological Site IE-AR-CL-525 – Adverse effect on this prehistoric site determined for encroachment associated with the Alternative A15 portion of the Project.

Attachment D (continued)

Historic Properties Determined to be Adversely Affected

Kentucky Portion of the Project:

James T. Taylor/James W. Chandler House – Adverse effect determined for visual, noise and vibration impacts associated with the Alternative A15 portion of the Project;

Merriwether House – Adverse effect determined for visual, noise and vibration impacts associated with the Alternative A15 portion of the Project;

Upper River Road Bridge over Harrods Creek – Adverse effect determined for visual and vibration impacts associated with the Alternative A15 portion of the Project;

Harrods Creek Village Historic District – Adverse effect determined for visual impacts associated with the Alternative A15 portion of the Project;

J. Schildknecht House – Adverse effect determined for visual, noise and construction impacts associated with the Alternative A15 portion of the Project;

Determan House – Adverse effect determined for visual, noise, vibration, and construction impacts associated with the Alternative A15 portion of the Project;

Allison-Barrickman – Adverse effect determined for visual, noise, vibration and construction impacts associated with the Alternative A15 portion of the Project;

St. Francis in the Fields Church – Adverse effect determined for visual and construction impacts associated with the Alternative A15 portion of the Project;

Rosewell – Adverse effect determined for visual, noise, vibration and construction impacts associated with the Alternative A15 portion of the Project;

Bellevue – Adverse effect determined for visual, noise, vibration and construction impacts associated with the Alternative A15 portion of the Project;

Phoenix Hill Historic District – Adverse effect determined for encroachment, visual, noise, vibration, and construction impacts associated with the Alternative C1 and;

Kennedy Interchange Reconstruction portions of the Project;

Butchertown Historic District – Adverse effect determined for encroachment, visual, noise, vibration and construction impacts associated with the Alternative C1 and Kennedy Interchange Reconstruction portions of the Project;

Attachment D (continued)

Country Estates of River Road Historic District – Adverse effect determined for visual, noise, vibration and construction impacts associated with the Alternative A15 portion of the Project;

Drumanard Historic District – Adverse effect determined for visual, noise, vibration and construction impacts associated with the Alternative A15 portion of the Project;

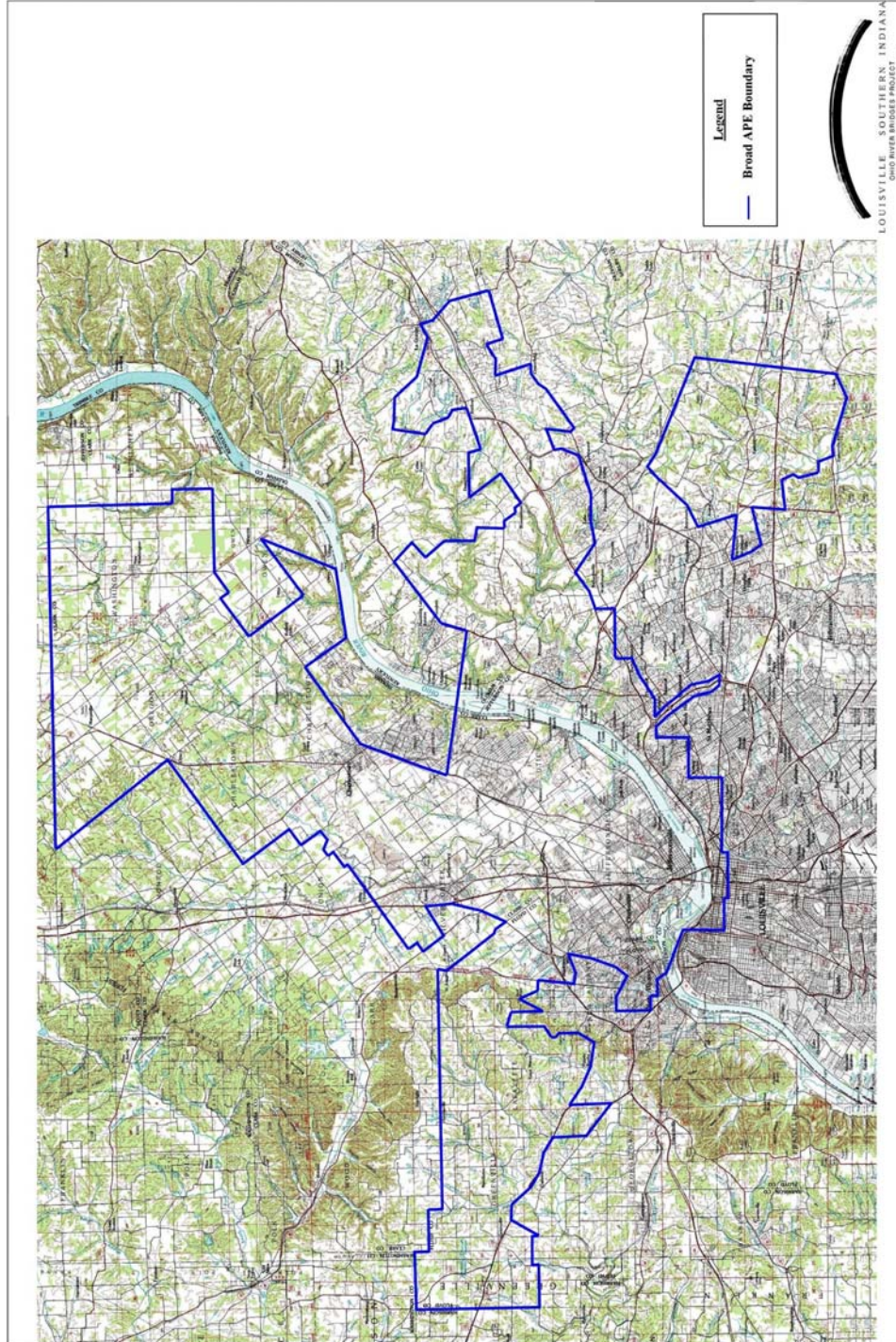
Harrods Creek Historic District – Adverse effect determined for visual impacts associated with the Alternative A15 portion of the Project;

Archaeological Site KE-AR-JF677 – Adverse effect on this prehistoric site determined for encroachment impacts associated with the Alternative A15 portion of the Project;

Archaeological Site KE-AR-JF678 – Adverse effect on this prehistoric site determined for encroachment impacts associated with the Alternative A15 portion of the Project;

Archaeological Site KE-AR-JF679 – Adverse effect on this multi-component historic/prehistoric site (partially or wholly compromised by recent housing construction) determined for encroachment impacts associated with the Alternative A15 portion of the Project; and

Archaeological Site KE-AR-JF680 – Adverse effect on this prehistoric site determined for encroachment impacts associated with the Alternative A15 portion of the Project.



Broad APE

Attachment E

Attachment F

LOUISVILLE – SOUTHERN INDIANA OHIO RIVER BRIDGES PROJECT SECTION 106 CONSULTING PARTIES

1. Advisory Council on Historic Preservation (ACHP),
2. African-American Foundation,
3. American Indian Movement – Mobile Chapter (MO-AIM),
4. American Indian Movement of Louisville,
5. Bridgepointe Home Owners Association,
6. Butchertown Neighborhood Association,
7. City of Green Spring,
8. City of Jeffersonville,
9. City of Louisville,
10. City of Prospect,
11. Clark County Board of Commissioners,
12. Clark County Historian,
13. Clark County Historical Society,
14. Clarksville Historical Society,
15. Clifton Community Council,
16. Coalition of Original People (COP),
17. Council for Conservation of Indiana Archaeology (CCIA),
18. Federal Highway Administration (FHWA)
19. Historic Homes Foundation,
20. Historic Landmarks Foundation of Indiana (HLFI),
21. Indiana Department of Natural Resources - State Historic Preservation Officer,
22. Indiana Department of Transportation (INDOT).
23. Jeff - Clark Preservation, Inc.,
24. Jefferson County Public Works,
25. Jeffersonville Main Street Association,
26. Kentucky Heritage Council – State Historic Preservation Officer (KYSHPO),
27. Kentucky Organization of Professional Archeologists (KYOPA),
28. Kentucky Transportation Cabinet (KYTC)
29. National Trust for Historic Preservation (NTHP),
30. National Trust for Historic Preservation – Southern Office,
31. Phoenix Hill Neighborhood,
32. Preservation Kentucky, Inc.,
33. Prospect/Harrods Creek Neighborhood Association,
34. River Fields, Inc.,
35. Rose Hill Neighborhood Association,
36. St. Francis in the Fields Church,

Attachment F (Continued)

SECTION 106 CONSULTING PARTIES

37. Society for American Archeology (SAA),
38. The Eastern Band of Cherokee Indians,
39. The United Keetoowah Band of Cherokee Indians,
40. The Absentee-Shawnee Tribe of Oklahoma,
41. The Shawnee Tribe,
42. The Cherokee Nation of Oklahoma,
43. The Eastern Shawnee Tribe of Oklahoma,
44. The Miami Tribe of Oklahoma,
45. The Peoria Indian Tribe of Oklahoma,
46. The Delaware Nation,
47. The Chickasaw Nation,
48. The Wyandotte Nation,
49. The Citizen Potawatomi Nation,
50. Town of Clarksville, and
51. Transylvania Beach Association

BIOLOGICAL ASSESSMENT

for

Indiana Bat, *Myotis sodalis*

Gray Bat, *Myotis grisescens*

Running Buffalo Clover, *Trifolium stoloniferum*

Short's Goldenrod, *Solidago shortii*

Pink Mucket, *Lampsilis abrupta*

Orange-foot Pimpleback, *Plethobasus cooperianus*

Fat Pocketbook, *Potamilus capax*

Ring Pink, *Obovaria retusa*

Clubshell, *Pleurobema clava*

Interior Least Tern, *Sterna antillarum*

Bald Eagle, *Haliaeetus leucocephalus*

Louisville and Southern Indiana

Two Bridge Alternative over Ohio River

INDOT Des. No. 9803640

KYTC Item No. 5-1118.00

Prepared for

The Indiana Department of Transportation

and the Kentucky Transportation Cabinet

Prepared by

Peggy A. Measel and Charles Raymer

Community Transportation Solutions, Inc.

Revised January 6, 2003

Revised per Field Coordination Meeting of August 13 and 14, 2002

TABLE OF CONTENTS

I. Project Location and Description.....	1
II. Identification of Listed Species	2
III. Species Status	2
Indiana Bat	2
Gray Bat	4
Running Buffalo Clover.....	5
Short's Goldenrod	6
Pink Mucket	7
Orange-foot Pimpleback	7
Fat Pocketbook.....	7
Ring Pink Mussel.....	8
Clubshell	8
Interior Least Tern	9
Bald Eagle.....	9
IV. Survey Methods.....	10
Indiana Bat	10
Gray Bat	11
Running Buffalo Clover.....	12
Short's Goldenrod	12
Fresh Water Mussels.....	12
Interior Least Tern	13
Bald Eagle.....	13
V. Results	13
Indiana Bat	13
Gray Bat	14
Running Buffalo Clover.....	17
Short's Goldenrod	17
Fresh Water Mussels.....	17
Interior Least Tern	18
Bald Eagle.....	18
VI. Mitigation.....	18
VII. Literature Cited	21

LIST OF TABLES

Table V.1 – Gray Bats Captured During 1999 Mist-Netting Efforts, Louisville Bridges Project	15
Table V.2 – Gray Bats Captured During 2000 Mist-Netting Efforts, Louisville Bridges Project	16

LIST OF FIGURES

Figure 1 – Project Study Area
Figure 2.1 – Downtown Preferred Alternate – C1
Figure 2.2 – East End Preferred Alternate – A15
Figure 3.1 – Downtown Alignments Carried Forward
Figure 3.2 – East End Alignments Carried Forward
Figure 4 – Indiana Bat Potential Foraging Range
Figure 5.1 – Survey Areas for Mussels and Bats – Far East
Figure 5.2 – Survey Areas for Mussels and Bats – Near East
Figure 5.3 – Survey Areas for Mussels and Bats – Downtown

**Biological Assessment
Threatened and Endangered Species
Louisville Bridges Project
INDOT Des. No. 9803640
KYTC State Item Number 5-118.00**

I. PROJECT LOCATION AND DESCRIPTION

Informal consultation with the U.S. Fish and Wildlife Service (USFWS) Tennessee and Indiana Field Offices, has been ongoing since October 9 and 15, 1998 when the agency was first contacted regarding the proposed project. At that time, both the Cookeville (Tennessee) office and the Bloomington (Indiana) office were requested to provide information on rare and endangered species records to aid in the development of an environmental resources map. The Kentucky Transportation Cabinet (KYTC) and the Indiana Department of Transportation (INDOT) initiated early coordination with the USFWS on December 3, 1998 and on December 22, 1998, respectively. In addition, an Agency Scoping Meeting was held on September 8, 1999 in Louisville, Kentucky. The USFWS Cookeville (Tennessee) office and the Bloomington (Indiana) office were in attendance. The purpose of the meeting was to provide preliminary information about the proposed project, and to identify issues of potential concern by the attending federal and state agencies.

As a result of coordination efforts, the USFWS identified several federally endangered species that may occur within the project corridor. Pursuant to the Endangered Species Act (ESA) of 1973, as amended, the best scientific methods were employed to determine the existence of federally protected species within the project area. The project area was searched for rock shelters, caves, forested riparian areas, wetlands and other habitat known to contain rare species. A separate study was conducted to identify freshwater mussels from area streams and the Ohio River. The ecological studies were conducted during 1999, and continued in 2000, on ecological resources within the proposed project corridor. As a result of the field survey efforts, the Terrestrial and Aquatic (T&A) Baseline Report was originally developed in August 2000 and revised in August 2001. The Kentucky Transportation Cabinet (KYTC) approved the T&A Baseline on October 24, 2001.

An informal consultation meeting was held with the USFWS Cookeville (Tennessee) office, the Federal Highway Administration (FHWA), INDOT and KYTC on August 13 and 14, 2002. The purpose of the meeting was to provide the USFWS with an update on the proposed project and to resolve mitigation issues. The meeting also included a windshield survey of the proposed eastern alignment.

The Ohio River has defined and shaped the greater Louisville metropolitan area/Southern Indiana area. As a result of the area's unique topography, there is an interrelationship among the area's transportation needs on both sides of the Ohio River (Figure 1).

The Ohio River Bridges project area generally extends from the Falls of the Ohio River on the west to the Jefferson County/Oldham County line on the east, and from I-64/I-71 on the south to I-265 in Indiana on the north.

The purpose of the Louisville - Southern Indiana Ohio River Bridges Project is to:

- Upgrade the Metropolitan Area transportation system by providing additional cross-river transportation access between Jefferson County, Kentucky and Clark County, Indiana.
- Improve traffic flow, level of service, and safety in downtown Louisville, Kentucky, and Jeffersonville, Indiana, by reducing traffic congestion and crash rates at the Kennedy interchange and Kennedy Bridge and on I-65 in Indiana immediately north of the Ohio River.
- Accommodate existing and future growth and improve transportation accessibility and interstate highway system linkage in eastern Jefferson County, Kentucky and eastern Clark County, Indiana.

The preliminary preference for the proposed project involves a Two Bridge Build Alternative involving the **C1 Alternate** with the **Kennedy Interchange reconstructed to the south** (Figure 2.1), and the **A-15 Alternate** (Figure 2.2). Alternative **C1** was selected from two other proposed downtown alternatives, C2 and C3 (Figure 3.1). Alternative **A-15** was selected from five other proposed east end alternatives, A-2, A-9, A-13, A-16 and B-1 (Figure 3.2).

II. IDENTIFICATION OF LISTED SPECIES

Early coordination responses from the USFWS dated November 2 and 6, 1998 and February 5, 1999 identified several federally listed species that may occur within the project impact area. The USFWS documented seven federally protected species with potential to occur within the Louisville Bridges project impact area: Indiana bat, Gray bat, Peregrine falcon, Running buffalo clover, Short's goldenrod, Pink mucket pearly mussel, and Orange-footed pimpleback mussel. In addition, the Kentucky State Nature Preserves Commission (KSNPC) provided records of the Fat pocketbook, Ring pink, and the Interior least tern. The Indiana field office of the USFWS provided records of the Bald eagle and Clubshell mussel within the project vicinity.

During the course of environmental studies for the Louisville Bridges project, the Peregrine falcon was down-listed by USFWS, but is still listed as State Endangered in both Kentucky and Indiana and is considered rare in most areas east of the Mississippi River. The federally protected species are discussed in the following sections.

III. SPECIES STATUS

1. Indiana Bat

The Indiana Bat (*Myotis sodalis*) was officially listed as an endangered species September 24, 1976, 41 FR-41914. It occupies a large portion of the eastern United

States. Historically, the species range extended through southeastern and central United States. The species migrates seasonally between winter and summer roosts. It is known to hibernate in caves in winter and to raise its young in large old trees in forested areas during summer months. Pregnant females give birth to single young, typically in June or July. The females and young band together, sometimes forming large colonies, underneath the loose bark of trees. These maternity colonies are generally found in close proximity to water. Summer habits of the male Indiana bats are not so well known, except that most leave the caves in which they hibernate from October to April. Indiana Bats have highly specific temperature needs for winter hibernation. The limited numbers of winter caves used by the Indiana bat suggests that few caves meet the rigid requirements. Presently, half of all known hibernating Indiana bats winter in Indiana.

No winter hibernating caves are known from the vicinity of the proposed project. The Indiana bats are known to return to particular maternity areas year after year. It has been determined that maternity colonies use multiple roosts, apparently having one primary roost and several secondary roosts. Lactating Indiana bats typically forage a few miles from the maternity roost.

The Indiana bat (*Myotis sodalis*) is a medium-sized member of its genus. Its appearance closely resembles that of the common Little brown bat, with which it is often mistaken. It differs from the Little brown bat in having a keeled calcar and slightly smaller feet with toe hairs not extending beyond the toes. The nose of the Indiana bat is often pinkish to pinkish gray in color.

The largest populations of Indiana bats occur in eastern Kentucky in the Cumberland Plateau Physiographic Region, but occurrences are scattered throughout the state. Critical habitat for the Indiana bat includes Bat Cave in Carter County, Kentucky and Coach Cave in Edmonson County, Kentucky. In Indiana, critical habitat includes Wyandotte Cave in Crawford County and Ray's Cave in Greene County.

In the past, Indiana bat populations drastically declined because of alterations to cave entrances. Improper gating of caves has restricted the bats from winter roosts and altered the air flow and temperature in the caves. Vandalism and commercialization of caves has also had an impact. Other reasons of decline in the Indiana bat population include impoundment of waterways, deforestation of summer habitats, stream channelization and pesticide applications.



Indiana Bat

2. Gray Bat

The Gray Bat was listed as endangered on April 28, 1976, 41 FR 177736 17740. Field studies for the Gray bat were conducted to determine the presence or absence of the Gray bat within the project impact area. Mist-nets were set in riparian corridors within the project impact area. Mist-net sites were the same as those for the Indiana bat. Gray bats are restricted to large cave systems in regions of the south central United States.

The Gray bat (*Myotis grisescens*) is the largest member of the *Myotis* genus. The bat is dark colored, the dorsal fur having only one color on the hair shafts from base to tip. The Gray bat also has an unusual wing membrane attachment at the ankle rather than the base of the toe as in other members of its genus.

The Gray bat is a year-round resident of caves, but may migrate seasonally between hibernating and maternity caves. Their caves must meet certain temperature and environmental criteria; thus all caves are not suitable habitat. The bats are extremely loyal to particular home territories. Maternity caves are typically located within a kilometer of streams or reservoirs. Summer colonies may occupy a traditional area with several roosting caves. Adult pregnant females give birth to a single young in late May to early June. During this time, the lactating females and their young amass in one specific traditional maternity cave. Males and non-reproductive females cluster in other caves within the colony's home range. The primary population centers for the Gray bat are the southern Appalachian and the Ozark areas. In Kentucky, Gray bats may be found throughout the state. Major maternity colonies and hibernacula occur in the Pennyryle Physiographic Region. A few maternity sites also occur in the Bluegrass Physiographic Region. Jesse James and Coach Caves in Edmonson County, Kentucky are Priority 1 sites (caves occupied presently or in the past by more than 50,000 bats). The Gray Bat Recovery Plan does not document Priority 1 sites in Indiana.

Because Gray bats are year-round residents of caves, they are especially vulnerable to human disturbance. Major reasons for the decline in Gray bat populations include alterations to cave entrances (closures/improper gating), cave commercialization and vandalism, stream channelization leading to siltation that reduce aquatic insect populations, waterway impoundments leading to flooding of hibernacula and/or nursery sites, deforestation, and insecticide applications.



Gray Bat

3. Running Buffalo Clover

Running buffalo clover (*Trifolium stoloniferum*) was listed by the USFWS as an endangered species on July 6, 1987, 52 FR 21478 21481. Running buffalo clover is a perennial native clover found locally in Kentucky and Indiana. It is a member of the legume family, forming long runners from its base and having a distinctive pair of leaves on the flower stalk. In Kentucky, the Running buffalo clover is found only in the Bluegrass Region along stream banks, trails, and forested areas with filtered light. Historically, the clover was associated with the movement of bison through the Bluegrass area, and was abundant, as documented by the early settlers. The species apparently requires some disturbance and has been found in lawns, parks, and cemeteries that are mowed occasionally. Disturbance seemingly encourages the formation of runners and the spread of the clover. This scarification-dependence is not yet fully understood.

The plant has declined throughout its known range from the time early settlers moved into Kentucky. The cause of decline has not been fully understood, but it appears that the plant's abundance was tied to the movement of large herbivores such as bison. Apparently, Running buffalo clover was relatively common in early settlement times, particularly in the Bluegrass area. Changes in land use and habitat loss related to settlement as well as the loss of large herbivores likely contributed greatly to the plant's decline. The introduction of exotic weeds has been a contributing element to

the decline also. Competition between the clover and its weedy associates and overtopping by competitors is a factor to its survival.

4. Short's Goldenrod

Short's goldenrod (*Solidago shortii*) was first listed as federally endangered on September 5, 1985, 50 FR 36085 36089. The plant is endemic to Kentucky, and is known historically from a very small geographic area. The range of Short's goldenrod is entirely within the Inner Bluegrass physiographic region in the Eden Shale Belt. Dr. Charles Wilkins first collected the plant in 1840 from the Falls of the Ohio River area near Louisville. It was named for the botanist C.W. Short who also documented specimens at the Falls of the Ohio River area. The Falls of the Ohio River, a large outcrop of Devonian limestone, is situated between Louisville, Kentucky and New Albany, Indiana. Short's goldenrod has not been found there since the late 1860's. The site received a great deal of disturbance with the development of the city of Louisville and the lock and dam construction near the Falls of the Ohio River. Prior to lock and dam construction, the area was a series of chutes and rapids, with large rock outcrops and several rocky islands. The islands are now greatly altered, destroyed or inundated. The plant is now considered extirpated from the area. In Kentucky, it is known from only one area near the Blue Licks Battlefield State Park in north-central Kentucky. Lucy Braun discovered it there in 1939. The Blue Licks area is currently the only site known to harbor the rare goldenrod.

The large gap in the goldenrod's range suggests it may have been associated with the bison herds that historically ranged the Bluegrass area. Lucy Braun (1941) speculated that bison helped maintain open habitat in which Short's goldenrod could thrive, and they may have played a part in seed dispersal. The plant could potentially be found anywhere along the old buffalo traces. It is known that buffalo traces occurred in association with Blue Licks, connecting Big Bone Lick in north-central Kentucky to Maysville along the Ohio River, and to Frankfort and Louisville. The Falls of the Ohio River area may have been a fording site for the bison. Land use changes over time with the disruption of natural forest cycles and the use of pasture grasses such as fescues have likely contributed to the plant's decline.

FRESHWATER MUSSELS

Naiades (freshwater mussels) occur in every temperate and tropical climate. Eastern North America contains the richest molluscan fauna known in the world. The most prolific freshwater mussel fauna in the world is known to occur in the Tennessee, Cumberland and Ohio River systems. There are twenty-three freshwater mussels listed as endangered in America, most of which are known from the Tennessee, Cumberland and Ohio Rivers. In a study conducted on the Ohio River by Williams in 1967, thirteen viable beds containing up to fourteen species were found in the McAlpine Pool in the project area. Another study conducted in 1982 in the same area showed that only 2 viable beds were still in existence, both from the Indiana side of the River. The 1982 study showed a greater deposition of silt near the dam end of the pool.

Mussels are typically long-lived organisms, some surviving up to 50 years. Most species are riverine animals requiring clean, flowing water over stable, silt-free sand or gravel substrates.

Four federally protected species of mussels have been documented historically from the Ohio River in the general vicinity of the proposed project. They are discussed in the following paragraphs.

5. Pink Mucket (*Lampsilis abrupta*, formerly *Lampsilis orbiculata*)

The federally endangered Pink mucket (*Lampsilis abrupta*, formerly *Lampsilis orbiculata*) was listed as endangered June 14, 1976, 41 FR 24062 24067. It is known to inhabit the lower Mississippi and Ohio rivers and their larger tributaries. These mussels occur in a variety of habitats. They are more commonly found in gravel and cobble substrate, but have been found in substrates ranging from silt to boulders. They have been collected from shallow to deep waters and in currents ranging from zero to swift. They are not known to have been collected from standing waters.

Glochidia (larval forms) of the Pink mucket are born in September and discharged in June to attach to a host fish as it transforms into a juvenile mussel before dropping to the bottom of the stream. Host fish, as reported by Fuller (1978), are bluegill, Smallmouth bass, Largemouth bass, White crappie, perch and sauger. Others report that fish hosts are not known. Four specimens of this mussel were collected during the 1982 Ohio River study by Williams and Schuster. There are historic records of this species from the Ohio River at Louisville.

6. Orange-foot Pimpleback

The Orange-foot pimpleback (*Plethobasus cooperianus*), also known as the Orange-footed pearly mussel, is a species of large rivers in sand, gravel or sand/gravel mix substrates. It is typically found in 15-20 feet of water. The species was listed as federally endangered in 1976.

Historically, early records of the Orange-foot pimpleback show this species to be strictly an Interior Basin (Ohio, Tennessee, and Cumberland Rivers) species. In the early 1900's the species was common in the Ohio and Cumberland Rivers. It was reported by Ortmann (1918) to be rare in the Tennessee River. Presently, small populations are known from only the Ohio, Cumberland, and Tennessee Rivers. The species is considered to be extremely rare in these drainages with very limited distribution. Potential fish host for the Orange-foot pimpleback glochidia is uncertain. There is a past record of the species' occurrence from the Ohio River at New Albany, Indiana.

7. Fat Pocketbook

The Fat pocketbook (*Potamilus capax* formerly *Proptera capax*) was listed as a federally endangered species on June 16, 1976, 41 FR 24062 24067. The species occurs in medium to large-sized rivers. It may be found in flowing waters and stable substrate. Its most likely habitat is a mixture of silt, clay and sand. The Fat

pocketbook often occurs around islands and back channels at depths of a few inches to eight feet. The fish host for the species glochidia is unknown, but is likely a large river species. The species was historically widespread and common locally in the Ohio, Mississippi and Cumberland Rivers. There is an historical record along the shoreline near Jeffersonville, Indiana.

As a large river species requiring lotic conditions, the Fat pocketbook is especially vulnerable to activities such as channel dredging related to navigation or flood control. Long-term dredging often has the result of shifting sandy substrates over large reaches of the stream bottom.

8. Ring Pink Mussel

The Ring pink mussel (*Obovaria retusa*) is a large river species. It inhabits relatively shallow, swift waters with gravel and sand substrates. The mussel was listed as a federally endangered species (1989) and has also been listed as State endangered in Kentucky and Indiana. The Ring pink mussel (formerly called the Golf stick mussel) occurred historically in the large streams of the Ohio River basin including those in Pennsylvania, West Virginia, Ohio, Indiana, Illinois, Tennessee, Alabama and Kentucky. It is now believed to be extirpated from all but five relic populations, two in Kentucky, two in Tennessee and one in West Virginia. Apparently, the species' reproduction and distribution have been seriously impacted by the construction of reservoirs in large habitat streams. Siltation related to damming sections of the streams obliterates the required habitat of this species.

The Ring pink's specific food habits are not yet known. Likewise, the fish host used by the glochidia (larvae) is not known. There are past records of this species from the Ohio River at Louisville.

Mussels have generally been in decline since the beginning of modern civilization. Reservoir construction has been a major factor in the loss of mussel diversity through habitat destruction, siltation, and temperature changes. Impoundments may have the effect of eliminating species that are not capable of adapting to reduced flows, altered temperatures and anoxic conditions. Because mussels are sedentary, sedimentation has very adverse impacts. Silt settling in pools above dams on large streams is often a result of agricultural practices and deforestation in upstream areas. Ellis (1936) reported that many mussel species are unable to survive in silt layers greater than 0.6cm depth.

9. Clubshell

The Clubshell (*Pterobema clava*) was listed as endangered by USFWS June 18, 1992, 57 FR 27203 27. The Clubshell was once far more abundant in the Ohio River, but habitat and water quality degradation, due to extensive impoundments, industrial wastes, and agricultural run-off have had an adverse effect on the species. The exotic zebra mussel has also had a detrimental effect on this species.

10. Interior Least Tern

The Least tern (*Sterna antillarum*) was listed by the USFWS May 28, 1985, 50 FR 21784 21792. It is a widely distributed species of the Atlantic and Gulf Coasts, but the interior race is found very locally. It is the smallest member of its family. Both sexes of the bird are very similar in appearance.

The species' conservation and survival have been a concern for a long time because of habitat alterations, and the low numbers of birds. Open or sparsely vegetated sandbars, gravel beaches, and alluvial islands which are the tern's most used nesting and feeding sites, have been modified greatly by management strategies of major river systems. Least terns are also known to nest on artificial habitats, such as dredge islands, dike fields, shores of reservoirs, and man-made sand and gravel pits. To an extent, these areas may have replaced natural nest sites. Eggs are generally laid in a shallow depression in the sand or gravel.

The Interior least tern is a migratory bird, spending its winter along the Gulf Coast from Texas to northern South America. Its breeding range historically included the Arkansas, Missouri, Mississippi, Ohio, Red and Rio Grande River systems. The tern has continued to breed in most of these river systems, but its distribution is restricted to those streams less altered. Numbers of the birds have apparently declined proportionately with modifications to sandbar and island habitats. The terns are also very susceptible to nest and chick loss because of the nature of the ephemeral habitats in which they nest.

Causes of decline in the Interior least tern populations have been due largely to human activities, including construction of navigation dams that alter sand and gravel bars in the rivers, and recreation in habitat areas that may cause adults to abandon nests.

11. Bald Eagle

The Bald eagle (*Haliaeetus leucocephalus*) was listed as an endangered species on March 11, 1967, preceding the Endangered Species Act. As early as the 19th century, the number of nesting eagles was beginning to decline. The Bald Eagle Protection Act was passed in 1940.

The Bald eagle (*Haliaeetus leucocephalus*) is now more widely distributed throughout the United States and Canada. It is known to occur sometimes along the Ohio River. The Indiana Field Office of the USFWS advised that the project is located within the range of the Bald eagle. Records from the Indiana Department of Natural Resources indicate that in 1999, there were 21 nesting territories for the eagles, none of which occurred near the project area. Care was taken to look for eagles during field investigations in the project area. Birds in the area are usually sighted during migration in late winter.

By the mid-20th century, a precipitous decline occurred largely due to habitat loss and DDT residue build-up in fish. Power line collisions and lead poisoning from eating

pellet-contaminated carrion also led to the decline. In 1999, it was proposed that the Bald eagle be removed from the Endangered Species list. There are now nearly 6,000 documented nesting pairs of eagles in the United States. Final decision on de-listing the Bald eagle is still pending.

IV. SURVEY METHODS

Prior to on-site investigations of the project area, applicable aerial, geologic and topographic quadrangle maps were reviewed for potential habitat areas. Field investigations began in early 1999 and continued through 2000. Special notice was taken for the rare plant and animal species and potential habitat within the project area. A mussel survey with brailing was conducted in the project area, and mist-netting was conducted over area streams through two summer seasons. Telemetry studies were also conducted with the Gray bat.

1. Indiana Bat (*Myotis sodalis*)

A previous Indiana bat record near the project corridor was supplied by the KSNPC, and the USFWS indicated that the Indiana bat might inhabit the project area, particularly in the east end of the Louisville Metropolitan Area and in Clark County, Indiana where forested riparian areas occur. Topographic maps and aerial photographs along with existing Indiana bat records were studied to plan sites where mist net surveys should be conducted.

In 1999, mist-netting efforts were conducted at thirteen different sites (with several net locations per site) for a total of fifty-three net nights within the project corridor in both Indiana and Kentucky. Sites were chosen along project area streams having mature trees and a relatively closed canopy, which created a natural flyway for the foraging bats. Areas with more than 30 m (98') of mature trees on both sides of streams seem to be the preferred foraging habitat. Indiana bats feed on flying insects typically found over canopied streams. Two sizes of 36 mm (1.4") mesh nets (approximately 12 m [39'] x 2.6 m [8.5'] and 6 m [20'] x 2.6 m [8.5']) were used, according to stream widths. All nets were set two poles high under an enclosed canopy. Nets were raised at dusk and taken down from midnight to 2:00 A.M., dependent upon bat activity in the area. Bat detectors helped to determine activity levels in the area. The USFWS recommends mist-netting be conducted between May 15 and August 15, after which time, the young of the year have likely dispersed.

When captures were made, mist nets were lowered and captured specimens were removed from the net. All bats were identified by species, gender, and reproductive condition (gravid or non-gravid) and appropriate measurements were taken. Captured specimens were then marked on the wing and released unharmed. This marking allowed any recaptures to be easily recognized.

In an effort to identify the maternity roost trees for the Indiana bat and enable biologists to determine if roost trees occur in the direct path of any particular alternative, mist-netting and telemetry studies were conducted again in the summer of 2000. Mist nets were set up at sites shown to harbor the Indiana bats in 1999, as well

as other potential sites. Sites netted in Indiana and Kentucky during the 1999 and 2000 seasons included (site numbers correspond to numbers located on Figures 5.1 to 5.3):

- 1) Lancassange Creek at Utica Pike;
- 2) Lentzier Creek at Utica Pike;
- 3) Lentzier Creek approximately one mile north of Utica Pike;
- 4) Goose Creek at Orion Road;
- 5) the confluence of Goose Creek and Little Goose Creek;
- 6) Goose Creek off Woodstone Way;
- 7) an unnamed tributary to Harrods Creek northwest of Shadow Wood Lane;
- 8) Hunting Creek (also a tributary to Harrods Creek) and Fox Harbor Road;
- 9) Little Goose Creek and Avish Lane;
- 10) the Wolf Pen Branch drainage area;
- 11) an unnamed tributary adjacent to Woodside Drive;
- 12) the Muddy Fork drainage area and at;
- 13) Eva Bandman Park near Beargrass Creek.

Typically, between three and four nets were set up at nine sites, with a total of seventy net nights for the 2000 mist-netting season. It was anticipated that captured Indiana bats would be tracked back to the maternity roost trees. Mist-nets were set in both field seasons at a total of thirteen sites for a total of one hundred twenty-three net nights.

2. Gray Bat (*Myotis grisescens*)

Plans for field studies for the Gray bat followed that of the Indiana bat. The USFWS advised of the potential for the Gray bat to occur within the proposed project corridor. KSNPC provided a previously known record of the Gray bat in the general area of the proposed project. The same mist net sites used to study the Indiana bat in 1999 and 2000 were also used to determine if the Gray bat foraged over streams within the project corridor. Gray bats captured were quickly examined, measured and released unharmed.

After confirming during 1999 that Gray bats forage within the Louisville Bridges project impact area, further telemetry work was necessary to try and delineate the maternity roosts and determine whether or not they occur within the area of any proposed alternative. Sites from which the bats were documented in 1999 (Lancassange and Goose Creek drainages) were re-visited in June 2000, and three new sites were also netted. All sites were riparian corridors within the proposed project area.

Small transmitters were attached to the backs of the five (four females, one male) bats, which were then released unharmed. Because personnel from the USFWS Bloomington Field office had informed the biologists of a Gray bat maternity colony near Sellersburg, Indiana, the team monitored that area during emergence in order to determine whether the captured bats used the Sellersburg site. The Indiana Army

Ammunition Plant at Charlestown, Indiana was also monitored during emergence. USFWS personnel believe a maternity colony may exist there also. The Goose Creek drainage area was monitored with receivers during emergence times to try and determine if a maternity colony may exist in eastern Jefferson County, Kentucky.

3. Running Buffalo Clover (*Trifolium stoloniferum*)

The Running buffalo clover's habitat descriptions were carefully studied by the environmental team prior to 1999 field surveys. Known sites were examined in an effort to familiarize team members with the plant's characteristics. Topographic maps and aerial photographs were studied to plan field activities in areas of high potential habitat. In some cases, sites were driven and observed to further determine habitat potential. Those areas chosen as high probability sites were walked and closely examined from late May to mid-June, 1999, which is the plant's prime flowering period.

4. Short's Goldenrod (*Solidago shortii*)

Prior to initiating fieldwork for the project, background information and studies on the Short's goldenrod were reviewed. Geographic maps, aerial photographs, and topographic maps were examined to help determine potential habitat to be investigated. The environmental team conducted field surveys similar to the surveys conducted for the Running buffalo clover. The surveys were conducted in September and October 1999 for Short's goldenrod in potential habitats throughout the project area. In particular, areas were thoroughly searched that had historic records of the plant near the Falls of the Ohio.

5-9. Fresh Water Mussels

Pink Mucket (*Lampsilis abrupta*)

Orange-footed Pimpleback (*Plethobasus cooperianus*)

Fat Pocketbook (*Potamilus capax*)

Ring Pink (*Obovaria retusa*)

Clubshell (*Plerobema clava*)

A mussel brail was used to determine the presence of mussel beds within the proposed alignments. A brail is an excellent reconnaissance tool because a large area can be sampled in a short time. Brailing was utilized to determine the presence of mussels within the areas of the proposed alignments. Brail transects were established between approximately 150 m (500') upstream and 150 m (500') downstream of C1 and C3 (collectively), C2, B1, A8, A13, A15 and A16 (Figures 5.1 to 5.3). At the time of sampling, A8 was considered a viable alignment. However, due to the number of archaeological resources impacted by the alignment, it was eliminated prior to the development of the Draft Environmental Impact Statement (DEIS). Alignment A9 was designed as an alternate near east route. Transects were spaced 30m (100'), 60m (200'), 90m (300'), and 150m (500') from the banks. The brail was deployed at the upstream end of each transect and slowly dragged downstream. The brail was retrieved at the end of each transect at which time the debris and unionid shells were removed. Riverbanks and shallow sand flats associated with the alternatives were

searched for unionid shells and live unionids. All mussels collected were measured, aged, sexed, and counted.

Within each alignment that was sampled, habitat was characterized to estimate suitability for mussels. Water depth was determined with a depth recorder at the end of each trail transect. Substrate composition was estimated from a petite ponar grab sample. Water temperature and dissolved oxygen were measured with a YSI DO meter. Water clarity was measured with a standard Secchi disk within each sampled area. Studies were conducted in September and November 1999. River conditions during both months were good for trailing, and both sampling sessions were conducted under low flow conditions.

10. Interior Least Tern (*Sterna antillarum*)

Literature was searched and documented sightings were studied prior to field studies. Personal conversations were held with recognized experts. Historically, Audubon (1861) documented the Interior least tern on the Ohio River. Prior to construction of the navigation dam on the Ohio River, more suitable habitat was available in Jefferson County and around Louisville. The area adjacent to the Falls of the Ohio River, where the bird has been sighted on numerous occasions, as well as open areas in Indiana were examined during field investigations.

11. Bald Eagle (*Haliaeetus leucocephalus*)

The Bald eagle is not known to nest within the project area, but winter records are available. According to Mr. John Costrale, Non-game Bird Biologist with IDNR, the nearest known eagle nest in Indiana is located in Fredonia, west of the project impact area. Records from the IDNR indicate that in 1999, there were twenty-one nesting territories for the eagles. There were twelve successful nests and nineteen young were fledged. Care was taken to look for eagles during field investigations in the project area.

V. RESULTS

1. Indiana Bat

Indiana bats were caught from two sites during the 1999 field investigations. On July 12, 1999, a lactating female Indiana bat was caught at 12:30 A.M. over Goose Creek near Orion Road. Again, on July 28, 1999, a post-lactating female Indiana bat was caught at the junction of Goose and Little Goose Creeks at 1:35 A.M. Both bats were quickly examined, marked for identification, and released. The bat caught at Goose/Little Goose Creeks was caught thirty minutes later in the same net. Capturing a post-lactating female bat in the same net twice indicates that a maternity colony is likely to be near Goose Creek in eastern Jefferson County, Kentucky. Furthermore, it suggests that the bat was not using the creek as a route to the roost tree, but rather the roost tree was probably close to the capture site. If the bat was using Goose Creek as a route between its foraging site and the roosting tree, it would not likely of been captured twice in thirty minutes. However, if the bat was captured at emergence and again in the early morning, it could be conceivable that Goose Creek is utilized as a linking route to the roost tree, which may be approximately 2.5 km (1.5 miles) from the capture site. Therefore, it was important to identify the maternity roost trees for

the Indiana bat in order to determine if they occur in the direct path of any particular alternative.

In an effort to identify the maternity roost trees for the Indiana bat to determine if they occur in the direct path of any particular alternative, mist netting and telemetry studies were conducted in the summer of 2000. Sites netted included Goose Creek at Orion Road, and the confluence of Goose and Little Goose Creeks. Three additional sites were also sampled: the Lentzier Creek drainage area in southern Indiana, Goose Creek near Woodstone Way, and a tributary to Harrods Creek in east Jefferson County, Kentucky (Figures 5.1 to 5.3). A number of nets were set at each site, totaling seventy net nights for the 2000 netting season. It was hoped that captured Indiana bats could be tracked back to the maternity roost trees. However, no Indiana bats were caught in the 2000 season. Therefore, it was not determined if the Indiana bat maternity roosts occur in the direct path of any proposed alternative. Because lactating Indiana bats were caught foraging on Goose Creek in 1999, there is likely a maternity site in the general area. Previous studies document that Indiana bats may forage 2.5 km (1.5 miles) from the maternity site. Therefore, it is conceivable that the bats could have been some distance from the maternity colony when they were captured in mist-nets. Figure 4 identifies the potential foraging range of the Indiana bat based upon archival records and field investigations. It is not meant to identify exclusive foraging areas for the Indiana bat, but rather provide a general representation of the area that may be utilized by the Indiana bat within the limits of the project. Investigations did not determine the location of any maternity trees. Without any mitigation measures, the A-15 alternative may adversely affect the Indiana bat. Mitigation measures will be implemented to avoid adverse effects to the Indiana bat. The C-1 alternative and reconstruction of the Kennedy interchange should have no impact on the Indiana bat. These bats continue to decline in numbers and any adverse impacts may ultimately affect the survival of the species.

2. Gray Bat

During 1999 and 2000 field studies, a total of twenty-one Gray bats were caught in mist nets. Nine Gray bats were caught during the 1999 mist-netting season in both Kentucky and Indiana over area streams. Gray bats caught during mist-netting efforts were carefully removed from the nets, examined and released at the site of capture.

The Gray bat was previously recorded from the forested riparian area in the Little Goose Creek drainage area between US 42 and River Road in east Jefferson County. Mist-netting efforts produced a number of Gray bats, both in Indiana and Kentucky. Five Gray bats were caught in the Goose Creek drainage, four of which were captured at the junction of Goose and Little Goose Creeks. The remaining Gray bat was caught along Goose Creek, behind Orion Road. One of the four bats from Goose Creek area was a post-lactating female, one was a juvenile male, and three were adult males. Four other Gray bats were mist-netted in Indiana from the Lancassange Creek drainage. One bat was also a post-lactating female; all others were adult males.

No caves that serve as habitat for the Gray bat are known to occur within the project impact area. There are caves, however, on INAAP property in Clark County, Indiana, from which the Gray bat has been identified. The cave supporting the Gray bat maternity colony on INAAP is thought to be within the Jenny Lind Run drainage, which is a few miles north of the proposed Louisville Bridges project area. Studies show that Gray bats may forage several miles from their roost caves.

Table V.1 provides a summary of the sites where Gray bats were caught during the 1999 mist-netting season for the proposed Louisville Bridges project. Gray bats caught during mist netting efforts were carefully removed from the nets, examined and released at the site of capture.

Table V.1 – Gray Bats Captured During 1999 Mist-Netting Efforts, Louisville Bridges Project

Location/date	Time	Gender Description
Goose Creek off Orion Rd/12 July, 1999	1:30 A.M.	Adult Male
Junction of Goose and Little Goose Creeks /27 July, 1999	1:15 A.M.	Post-lactating female
Goose and Little Goose Creeks/27 July, 1999	12:30 A.M.	Adult Male
Goose and Little Goose Creeks/27 July, 1999	1:00 A.M.	Juvenile male
Junction of Goose and Little Goose/28 July, 1999	11:45 P.M.	Adult male
Lancassange Cr. Ind./30 July, 1999	10:20 P.M.	Adult male
Lancassange Cr. Ind./30 July, 1999	12:20 A.M.	Post-lactating female
Lancassange Cr. Ind./30 July, 1999	12:20 A.M.	Adult male
Lancassange Cr. Ind./31 July, 1999	2:00 A.M.	Adult male

In an effort to identify the maternity roosts for the Gray bat to determine if they occur in the path of any proposed alignment, mist-netting and telemetry studies were conducted in the summer 2000.

As with the Indiana bats, further efforts were made to help determine the status of Gray bats within the project impact area and whether or not a maternity colony site may exist in the area. In order to make these determinations, Gray bats caught in mist-nets were fitted with small transmitters attached to the backs of the bats; they were then released unharmed. Gray bats were captured in the Lancassange drainage area in Indiana and the Goose Creek drainage area in Kentucky. A total of twelve gray bats were captured during the 2000 mist-netting season, with one escaping prior to its identification. Five of the twelve captured bats were tracked for several nights until signals were located (Table V.2). Four bats were tracked to a known site in Sellersburg, Indiana. The fifth bat was never detected. Of the five Gray bats tracked, there were two males and three females.

Table V.2 – Gray Bats Captured During 2000 Mist-Netting Efforts, Louisville Bridges Project

Site of Capture	Date of Capture	Tracked	Notes
Lancassange Creek, IN	7 June	9-June, Sellersburg 9:20 P.M. 10 June, Sellersburg, 9:35 P.M.	non-reproductive male, band number Y002H
Goose Creek, KY	22 June	23 June, Sellersburg, 9:40 P.M. 24 June, Sellersburg, 9:38 P.M.	reproductive male, band number A02251
Goose Creek, KY	22 June	Not Tracked	escaped
Goose Creek, KY	22 June	Not Detected	adult lactating female, band number A02252
Goose Creek, KY	27 June	30 June, Sellersbug, 9:45 P.M., then Goose Creek, 10:30 P.M. 1 July, Sellersburg, 9:45 P.M.	adult lactating female, band number A02253
Goose Creek, KY	29 June	no transmitter attached	non-reproductive female, band number A02254
Goose Creek, KY	29 June	1 July, Sellersbug, 10:00 P.M. 2 July, Sellersbug, 9:54 P.M.	adult lactating female, band number A02255
Goose and Little Goose Creek, KY	18 July	Not Tracked	juvenile male
Goose and Little Goose Creek, KY	19 July	Not Tracked	juvenile male
Goose and Little Goose Creek, KY	19 July	Not Tracked	juvenile male, band number A02302
Goose and Little Goose Creek, KY	20 July	Not Tracked	Juvenile male, band number A02256
Goose and Little Goose Creek, KY	20 July	Not Tracked	Juvenile male, band number A02257

Gray bats are dependent upon forest canopy for protective cover and foraging area. Without protective mitigation measures, the proposed A15 alternative *may adversely affect* the Gray bat. Mitigation measures will be implemented to avoid adverse effects to the Gray bat. The C1 alignment and the reconstruction of the Kennedy Interchange should not affect the Gray bat. These bats travel long distances to forage within the project area where riparian habitat occurs. Removal of riparian habitat in the east end with project related construction activities could disrupt the cover and forage habitat of the Gray bat.

3. Running Buffalo Clover

Certainly, there are good potential habitat sites for Running buffalo clover in both Kentucky and Indiana within the project corridor. However, the environmental team did not identify any Running buffalo clover in the project impact area during field investigations. There is a small community of plants in the Wolf Pen area, but the site is outside of project limits. There will be *no adverse effects* to the Running buffalo clover with the proposed project.

4. Short's Goldenrod

A number of goldenrods were identified in the various habitats throughout the project impact area, but Short's goldenrod was not found. As stated previously, the goldenrod is considered extirpated from the project impact area. The Short's goldenrod was not identified in the proposed project area. The project will have *no adverse effect* on the Short's goldenrod.

5. Fresh Water Mussels

Because historic records show that rare mussels did occur in the section of the Ohio River near McAlpine Dam and the Falls of the Ohio, it appears that degradation of habitat has indeed had an adverse impact on viable populations of mussel fauna in the Ohio River. Pollution of streams from municipal, agricultural and industrial waste discharges has been an impact factor to mussel fauna. If stream disruptions are long-term and severe, the mussel fauna may not be able to recover.

At the sample time, water was very clear, and sampling was conducted during low flow conditions. Substrate throughout the study area did not appear to be conducive to unionids. Substrate along near bank areas consisted of silt, clay, and debris, with sand becoming more prevalent further from the bank. The sand and gravel in this river reach was very loose, and not conducive to supporting a stable unionid community.

Studies did not determine the presence of an established unionid community within the areas of any proposed alignments that were sampled. All of the unionid species collected were common in North America. The live species collected are generally found in softer sediments of rivers and lakes. One live Yellow sandshell (*Lampsilis teres*) was collected in the area of Alignment A-16 on the Kentucky side of the Ohio River. Weathered valves of the Washboard (*Megaloniais nervosa*) and the Mapleleaf (*Quadrula quadrula*) were also collected in association with Alternate A-16. Two live Pink heelsplitters (*Potamilus alatus*) were collected on the upstream side of Alternate

A-13. Zebra mussels (*Dreissena polymorpha*) and Asian clams (*Corbicula fluminea*) were often found throughout the various alternate areas. No other evidence of unionids was found associated with any of the other alternates. Endangered unionids are typically collected in species-rich communities. Few unionid records are available in this river reach, and the area does not appear to support a species-rich community. Substrate throughout the study area did not appear to be conducive to unionids. In general, substrate along near bank areas consisted of silt, clay and debris. Sand became more prevalent further from the bank, and some gravel was noted along the riverward transects. Sand and gravel can be good substrate for unionids if it is consolidated, or protected from high flow by cobbles and boulders. Sand and gravel in this river reach was very loose, and therefore would not support a stable unionid community. Brailing surveys failed to produce any rare mussels (Pink mucket, Orange-footed pimpleback, Fat pocketbook, Ring pink) or mussel beds within the proposed project area. Therefore, the construction of the preferred alternative will *have no adverse effects* to the rare mussel populations.

6. Interior Least Tern

In the Ohio River system, the Interior least tern is now found near the confluence of the Tennessee and Ohio Rivers. The nearest known nesting colony of the tern is in Gibson County, Indiana. The tern is historically known from the Falls of the Ohio River area, and has attempted to nest there in the past (1967), but was not successful. No Least terns were identified during project field studies. The project will have *no adverse effect* to the tern.

7. Bald Eagle

No Bald eagles were observed during field investigations for the proposed project. They may occur within the project impact area around the Ohio River during the winter months. According to John Costrale, Non-game Bird Biologist with IDNR, the nearest known nest in Indiana is located in Fredonia, to the west of the project impact area. This nest to-date is a non-productive nest. The Bald eagle will receive *no adverse effect* from the proposed project.

VI. MITIGATION

Mitigative measures will be necessary to avoid, minimize and mitigate impacts to the Indiana and Gray bats within the project area. Certainly, areas of forested riparian habitat conducive to bat foraging and maternity habitat (for Indiana bat) can be found along stream corridors throughout the project impact area. In east Jefferson County, Beargrass Creek, Harrods Creek, Goose and Little Goose Creek drainages may be considered potential habitat. In Indiana, both Lentzier and Lancassange Creeks support forested riparian habitat. These streams are within the forage area for the Gray and Indiana bats.

Indiana bat females typically form maternity roosts in summer under exfoliating tree bark to have their young. Often, up to 100 females with young may be found in a single tree or snag. Typically the trees are ≥ 9 inches in diameter at breast height (dbh). The Indiana bat typically utilizes the same maternity area from year to year,

making fragmentation of forested areas especially troublesome. Both male and female Indiana bats utilize dead and dying trees ≥ 5 inches dbh for non-maternity roosting habitat. The bats will utilize snags, hollow trees, split-trunk trees and live trees with loose bark. Trees that meet these descriptions will be avoided except those in the direct construction limits.

The same mitigation methods that apply to the Indiana bat also apply to the Gray bat, except for those related to maternity colonies. Studies conducted on the project indicated that the Gray bats forage over the Lancassange Creek drainage in Indiana and the Goose/Little Goose Creek drainage in Kentucky. These streams do not occur within the preferred alternatives. However, Alternative A-15 also has riparian corridors conducive to Gray bat use, and Gray bats typically fly several miles to forage. These bats apparently roost at the known southern Indiana maternity site, an area that will not be impacted with the construction of the proposed project. Because Gray bats were foraging up to 12 miles from this site to riparian corridors where they were captured, it is feasible they could forage anywhere within the project area. The Gray bats use riparian corridors as protection against predators and to forage for food.

Because Gray bats typically forage over streams and other water bodies, water quality is of utmost importance. The deforestation of forested riparian habitat may increase siltation of the area streams. This increase may adversely affect the insect fauna on which the bats feed, in which case the bats are both directly impacted by the deforestation of their forage area and indirectly affected by the adverse impacts to their food supply. Past studies have shown Gray bat populations to decline in some areas where siltation has directly impacted streams. Research has also shown that Gray bats avoid rivers and reservoirs that have been cleared of vegetation.

Gray bats are totally reliant on a few caves year-round for their survival. Although no known caves that harbor Gray bats occur within the project area, the potential impact to their forage area makes them vulnerable with the construction of this project.

The following mitigation measures will be implemented in project corridor streams.

- Tree removal in construction zones must be scheduled between October 15 and March 31 to prevent disturbance to trees that may harbor the Indiana bat summer colonies.
- In order to maintain a riparian buffer zone, tree cutting will be maintained within the construction limits and will be limited to that absolutely necessary to complete the project.
- Disturbed areas will be re-vegetated to the maximum extent possible with tree species that produce sloughing bark and snags. Species to consider include White oak, Northern red oak, White ash, Shagbark hickory, Slippery elm, Black locust, American elm, Shellbark hickory, cottonwood and sycamore.

- Preservation of surface water quality within the Gray bat and Indiana bat forage areas will be controlled by maintaining stream-crossing impacts. Channel work such as, vegetation clearing, channel widening, shaping of spill slopes and placement of riprap will be limited to the construction limits. Riprap used for bank stabilization will extend below the low water level to aid in the establishment of aquatic life and potential food reservoir.
- In order to protect forage areas for the Indiana and Gray bats and to maintain water quality the following management practices shall be implemented; no equipment will be allowed directly in the streams. Staging, refueling and cleanup areas will not be allowed along-side streams. All KYTC and INDOT BMP's for stream protection will be in place during project construction.

In addition to the mitigation measures outlined above, possible enhancements of the wooded area below the B. E. Payne Water Treatment Plant settling pond will be coordinated with the Louisville Water Company during the development of construction plans. Representatives of the Louisville Water Company have indicated a willingness to consider such a plan subject to the conditions placed about their future use of the area. Enhancements would generally be limited to the planting of additional trees to provide a diversity of habitat within this floodplain area of the Ohio River for the Indiana and Gray bats.

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